出口退税率查询

共9条 1页 1/1 页

商品编码	商品名称	计量单位	增值税退税率%
29333300	阿芬太尼、阿尼利定、氰苯双哌酰胺、澳西泮、地芬诺新、地芬诺酯、地匹哌酮、芬太尼、酮托米酮、哌醋甲酯、喷他左辛、哌替啶、哌替啶中间体A、苯环利定、苯哌利定、哌苯甲醇、哌氰米特、丙吡兰和三甲利定以及它们的盐	千克	10.0
2933399071	乙酰阿法甲基芬太尼、烯丙罗定、阿法美罗定(以及它们的盐)	千克	13.0
2933399072	阿法甲基芬太尼、阿法罗定、卡替啶(以及它们的盐)	千克	13.0
2933399073	倍他羟基芬太尼、倍他羟基-3-甲基芬太尼、倍他美罗定(以及它们的盐)	千克	13.0
2933399075	3-甲基芬太尼、1-甲基-4-苯基-4-哌啶丙酸酯、诺匹哌酮(以及它们的盐)	千克	13.0
2933399076	对氟芬太尼、1-苯乙基-4-苯基-4-哌啶乙酸酯(以及它们的盐)	千克	13.0
2933399080	瑞芬太尼及其盐	千克	13.0
2934999071	硫代芬太尼、阿法甲基硫代芬太尼(以及它们的盐)	千克	13.0
2934999073	呋替啶、左吗拉胺、3-甲基硫代芬太尼(以及它们的盐)	千克	13.0

查 询

商品代码：

商品名称：芬太尼

提交 重置

ENGLISH VERSION

Total 9 Article 1 Page 1/1 page

Commodity code	product name	unit of measurement	VAT refund rate%
29333300	Alfentanil, anilidine, cyanidinamide, bromine, difenofol, diphenoxylate, dipyridone, fentanyl, ketoxifen, methylphenidate, spray Levoxine, pethidine, meperidine intermediate A, phencyclidine, bepiridine, piperoxymethanol, piperidinide, propiline and trimethylididine and their salts	kilogram	10.0
2933399071	Acetyl-alpha fentanyl, allylidine, alfamelidine (and their salts)	kilogram	13.0
2933399072	Alfamethyl fentanyl, afarodidine, benzyl pyridine (and their salts)	kilogram	13.0
2933399073	Beta-hydroxyfentanyl, beta-hydroxy-3-methylfentanyl, betamethasamine (and their salts)	kilogram	13.0
2933399075	3-methylfentanyl, 1-methyl-4-phenyl-4-piperidine propionate, norpiperone (and their salts)	kilogram	13.0
2933399076	For flufentanil, 1-phenylethyl-4-phenyl-4-piperidine acetate (and their salts)	kilogram	13.0
2933399080	Remifentanil and its salts	kilogram	13.0
2934999071	Thiofentanil, alpha thiofentanyl (and their salts)	kilogram	13.0
2934999073	Furidine, levolalam, 3-methylthiofentanyl (and their salts)	kilogram	13.0

product name:

芬太尼

submit Reset

EXHIBIT 103

Fact Sheet: WTO Case Challenging Chinese Subsidies

What Chinese Policies are at Issue?

• China appears to be providing export subsidies that are prohibited by the World Trade Organization (WTO) to its auto and auto parts industries.

• The subsidies being challenged are provided to auto and auto-parts manufacturers in China that meet certain export performance requirements and that are located in government-designated regions known as “export bases.”

• The “export base” program provides export subsidies such as cash grants for exporting, grants for research and development, subsidies to pay interest on loans, and preferential tax treatment.

• WTO rules consider export subsidies so trade distorting that they are prohibited outright.

How Do These Subsidies Tilt the Playing Field?

China’s subsidies distort trade conditions for auto and auto parts manufacturers in the United States by providing an unfair advantage to China’s auto and auto-parts industries.

Export Subsidies Unfairly Promote Exports of Autos and Auto Parts – The subsidies being challenged go to auto and auto part manufacturers in China that meet certain export performance requirements.

• Based on publicly available documents, the value of subsidies made available to auto and auto parts manufacturers in China between 2009 and 2011 was at least $1 billion.

• In the years 2002 through 2011, the value of China’s exports of autos and auto parts increased more than nine-fold, from $7.4 billion to $69.1 billion. China rose from the world’s 16th largest to the 5th largest auto and auto parts exporter during his period.

• The United States was China’s largest export market for auto parts in the years 2002 through 2011.

Chinese Export Subsidies Hurt the Producers of Autos and Auto Parts in the United States – The export subsidies at issue make it harder for autos and auto parts manufactured in the United States to compete with Chinese products in the world market. Eliminating export subsidies produces real, job-supporting results for American firms and working families.

• The production of auto and auto parts in the United States is a key component of the nation's manufacturing base. In 2011, manufacturers in the United States produced over $350 billion worth of autos and auto parts. In a typical year, production of auto and auto parts in the United States accounts for about five percent of GDP and 16 percent of all durable goods shipments.

• As of July 2012, the auto and auto parts manufacturing sector in the United States employed nearly 800,000 American workers.

• The top five states in auto and auto parts manufacturing employment are: Michigan, Ohio, Indiana, Kentucky, and Alabama.

• In 2011, manufacturers in the United States exported $123 billion of autos and auto parts. These exports support the jobs of thousands of American workers.

• The export subsidies provided to the Chinese auto and auto-parts industries hurt auto and auto parts manufacturers and workers in the United States through lost sales and lost market share in U.S. and world markets.

Examples of auto parts include engines and engine parts; electrical and electronic equipment; steering and suspension components; brake systems; transmission and power train parts; seating and interior trimmings; metal stampings; and other original equipment and aftermarket motor vehicle parts.

Why Pursue WTO Dispute Settlement?

• The United States is committed to fairness in the international trading system. This includes ensuring that China abides by the same rules that are applicable to other WTO Members.

• The United States has raised concerns with China regarding subsidies that the Chinese government provides to auto and auto-parts manufacturers. These concerns, however, have not been addressed. As a result, the United States today took the first step to bring this case before the WTO.

• Under WTO dispute settlement procedures, the United States and China would normally consult within 30 days. The United States hopes that these consultations will produce a satisfactory result. If they do not, the United States has the right, after 60 days from the request for consultations, to request that the WTO establish a dispute settlement panel to examine the matter.

• WTO dispute settlement rules have facilitated and are assisting us in the resolution of other trade disputes with China:

-
    - June 2009 – The United States and several other WTO members filed a WTO dispute against China challenging its export restraints on raw materials. Both the Panel and the Appellate Body upheld the majority of the U.S. claims, finding China's measures to be inconsistent with its WTO commitments.
    - December 2010 – Following a Section 301 investigation based on a petition filed by the United Steelworkers, the United States initiated a WTO case challenging subsidies that China provided to manufacturers in its wind power equipment sector that appeared to require the use of local content, at the expense of foreign manufacturers' products. In response to our challenge, China terminated the challenged subsidy program.
    - September 2010 – The United States filed a WTO dispute challenging a series of Chinese measures that discriminate against foreign providers of electronic payment services. On July 16, 2012, the WTO circulated the Panel's final report. The Panel found in favor of the United States regarding most of the challenged measures, whether based on the General Agreement on Trade in Services (GATS) national treatment claims or the GATS market access claims.
    - September 2010 - The United States filed a WTO dispute challenging China's imposition of antidumping and countervailing duties on grain oriented flat-rolled electrical steel. On June 15, 2012, the WTO circulated the Panel's final report. The Panel ruled in favor of the United States, finding most of the challenged measures inconsistent with China's WTO commitments. On 20 July 2012, China notified the WTO of its decision to appeal to the Appellate Body certain issues of law and legal interpretations covered in the panel report.

EXHIBIT 104

首页

通知指南

公告公示

政策文件

园区招商

2022年度闵行区稳外贸政策项目拟扶持企业项目企业名单公示

发布时间：2023-07-29 | 栏目：公告公示 | 浏览次数：471

根据《闵行区关于做好外贸“提质增效，稳定发展”工作的若干意见》（闵经委规发〔2021〕6号）的要求，为加大用保险支持力度，拟对区内外贸企业出口信用保费给予支持。**区经委组织开展了项目审核，拟扶持的企业（项目）予以公**

公示期间如对公示企业（项目）有相关意见或建议请与闵行区经济委员会反映。

公示日期：2023年7月28日-2023年8月3日

2022年度闵行区稳外贸政策项目拟扶持企业（项目）一览表

序号	企业名称
1	上海思源高压开关有限公司
2	上海思源输配电工程有限公司
3	思源电气股份有限公司
4	上海特雷通智能家居有限公司
5	上海移为通信技术股份有限公司
6	三问家居股份有限公司
7	上海泛太制帽有限公司
8	上海网讯新材料科技股份有限公司
9	上海广为焊接设备有限公司
10	奥特斯（中国）有限公司
11	东方国际集团上海家纺有限公司
12	上海盈桥服饰有限公司
13	上海剑桥科技股份有限公司
14	上海利迈国际贸易有限公司
15	上海加冷松芝汽车空调股份有限公司

16	上海联磁磁业有限公司
17	上海亚滔贸易有限公司
18	上海柯林包装集团有限公司
19	上海广为美线电源电器有限公司
20	上海题桥纺织染纱有限公司
21	东方国际商业(集团)有限公司
22	英特莱福（上海）新能源技术有限公司
23	上海洋帆实业有限公司
24	上海实达精密不锈钢有限公司
25	上海邦佳实业有限公司
26	上海神开石油设备有限公司
27	上海华襄机械有限公司
28	上海尚得服装有限公司
29	上海源微纺织品有限公司
30	上海朗闻电缆材料有限公司
31	上海中志制衣有限公司
32	上海龙铢国际贸易有限公司
33	上海望春花进出口贸易有限公司
34	上海慕欧服饰有限公司
35	上海瑞显贸易有限公司
36	莱舍黎家俱（上海）有限公司
37	安乃达驱动技术（上海）股份有限公司
38	上海麦翎服饰有限公司
39	上海乔外国际贸易有限责任公司
40	上海劲和进出口有限公司
41	上海彦锐实业有限公司
42	和牧电子商务（上海）有限公司
43	上海特雷通实业有限公司
44	上海英帛贸易有限公司
45	素敏（上海）包装新技术有限公司

46	上海紫江彩印包装有限公司
47	上海森汇进出口有限公司
48	上海汉泰医疗器械有限公司
49	上海恒豫德实业有限公司
50	上海益森园艺用品有限公司
51	上海安威士科技股份有限公司
52	士商（上海）机械有限公司
53	上海瑞正化工科技有限公司
54	佰枫国际贸易（上海）有限公司
55	上海仁辅化工有限公司
56	上海仰世实业有限公司
57	五极纺织科技（上海）有限公司
58	上海申沃客车有限公司
59	上海高和美贸易有限公司
60	上海三菱电梯有限公司
61	上海锐植医疗器械有限公司
62	上海三美化工有限公司
63	上海善凯进出口有限公司
64	上海绿懋实业有限公司
65	上海世骋实业有限公司
66	上海优赛实业有限公司
67	上海紫燕合金应用科技有限公司
68	耘农（上海）化工有限公司
69	上海富托贸易有限公司
70	禄溢（上海）实业有限公司
71	芮笛（上海）机械设备有限公司

来源:上

上海产业政策服务中心

项目申报办公室：方主任

电话-微信：15618903837

*本文发布的政策内容由上海产业政策服务中心整理解读，如有纰漏，请与我们联系。

上海产业政策服务中心：权威的政策辅导+园区招商平台

政策扶持：指导企业申请各类政府专项补贴资金，包括上海科委，经信委，发改委，商务委和各区部门政策资金项目规划，重点申报，确保立项，获得扶持资金。

园区招商：上海市级园区，科创企业迁入即奖励，落实软件企业退税，签订高额返税，安排人才落户，土地厂房免租人才创业，0元注册公司，免费提供地址，辅导申报创业政策补贴资金。

上海产业政策服务中心
微信公众号：sh-hitech

上一篇：« 普陀区加快发展研发服务产业2023年第二批项目申　　下一篇：关于发布《2023年度上海市第一批创新产品

电话：15618903837　地址：上海市徐汇区漕宝路650号1栋1108室　备案号：沪ICP备19002494号-3

ENGLISH VERSION

front page

Notification Guide

Announcement

Policy Documents

Park Investment

and

cal

activities

Announcement of the list of enterprises to be supported by Minhang District's fore trade stabilization policy projects in 2022

Release time: 2023-07-29 | Category: Announcements | Views: 471

According to the requirements of the "Opinions of Minhang District on Improving the Quality and Efficie Foreign Trade and Stable Development" (Minjingwei Guifa [2021] No. 6), in order to increase the support for credit insurance, it is planned to support the export credit insurance premiums of foreign trade enterprises district. **The District Economic Commission organized a project review and publicized the enterpri 'orc to be supported.**

During the publicity period, if you have any comments or suggestions on the announced enterpri pro please report them to the Minhang District Economic Committee.

Publication date: July 28, 2023 - August 3, 2023

List of enterprises (projects) to be supported by Minhang District's foreign trade stabilizat oli projects in 2022

Serial number	Company Name
1	Shanghai Siyuan High Voltage Switchgear Co., Ltd.
2	Shanghai Siyuan Power Transmission and Distribution Engineering Co., Ltd.
3	Siyuan Electric Co., Ltd.
4	Shanghai Trayton Smart Home Co., Ltd.
5	Shanghai Yiwei Communication Technology Co., Ltd.
6	Sanwen Home Furnishing Co., Ltd.
7	Shanghai Pan Pacific Hat Co., Ltd.
8	Shanghai Netcom New Materials Technology Co., Ltd.
9	Shanghai Guangwei Welding Equipment Co., Ltd.

10	AT&S (China) Co., Ltd.
11	Oriental International Group Shanghai Home Textile Co., Ltd.
12	Shanghai Yingqiao Clothing Co., Ltd.
13	Shanghai Cambridge Technology Co., Ltd.
14	Shanghai Limai International Trading Co., Ltd.
15	Shanghai Kallang Songzhi Automotive Air Conditioning Co., Ltd.
16	Shanghai Lianci Magnetics Co., Ltd.
17	Shanghai Yatao Trading Co., Ltd.
18	Shanghai Kelin Packaging Group Co., Ltd.
19	Shanghai Guangwei Meixian Power Supply Appliance Co., Ltd.
20	Shanghai Tiqiao Textile Yarn Dyeing Co., Ltd.
twenty one	Oriental International Commercial (Group) Co., Ltd.
twenty two	Interlife (Shanghai) New Energy Technology Co., Ltd.
twenty three	Shanghai Yangfan Industrial Co., Ltd.
twenty four	Shanghai Star Precision Stainless Steel Co., Ltd.
25	Shanghai Bangjia Industrial Co., Ltd.
26	Shanghai Shenkai Petroleum Equipment Co., Ltd.
27	Shanghai Huaxiang Machinery Co., Ltd.
28	Shanghai Shangde Clothing Co., Ltd.
29	Shanghai Yuanwei Textile Co., Ltd.
30	Shanghai Langwen Cable Material Co., Ltd.
31	Shanghai Zhongzhi Garment Co., Ltd.
32	Shanghai Longlai International Trading Co., Ltd.
33	Shanghai Wangchunhua Import and Export Trading Co., Ltd.
34	Shanghai Muo Clothing Co., Ltd.
35	Shanghai Ruixian Trading Co., Ltd.
36	Lai She Li Furniture (Shanghai) Co., Ltd.
37	Anida Drive Technology (Shanghai) Co., Ltd.
38	Shanghai Mailing Clothing Co., Ltd.

39	Shanghai Qiaowai International Trade Co., Ltd.
40	Shanghai Jinhe Import and Export Co., Ltd.
41	Shanghai Yanrui Industrial Co., Ltd.
42	Hemu E-commerce (Shanghai) Co., Ltd.
43	Shanghai Trayton Industrial Co., Ltd.
44	Shanghai Yingbo Trading Co., Ltd.
45	Sumin (Shanghai) Packaging New Technology Co., Ltd.
46	Shanghai Zijiang Color Printing and Packaging Co., Ltd.
47	Shanghai Senhui Import and Export Co., Ltd.
48	Shanghai Hantai Medical Equipment Co., Ltd.
49	Shanghai Hengyude Industrial Co., Ltd.
50	Shanghai Yisen Gardening Products Co., Ltd.
51	Shanghai Anviz Technology Co., Ltd.
52	Shishang (Shanghai) Machinery Co., Ltd.
53	Shanghai Ruizheng Chemical Technology Co., Ltd.
54	Baifeng International Trading (Shanghai) Co., Ltd.
55	Shanghai Renfu Chemical Co., Ltd.
56	Shanghai Yangshi Industrial Co., Ltd.
57	Wuji Textile Technology (Shanghai) Co., Ltd.
58	Shanghai Sunwin Bus Co., Ltd.
59	Shanghai Gaohemei Trading Co., Ltd.
60	Shanghai Mitsubishi Elevator Co., Ltd.
61	Shanghai Ruizhi Medical Devices Co., Ltd.
62	Shanghai Sanmei Chemical Co., Ltd.
63	Shanghai Shankai Import and Export Co., Ltd.
64	Shanghai Greenmao Industrial Co., Ltd.
65	Shanghai Shicheng Industrial Co., Ltd.
66	Shanghai Yousai Industrial Co., Ltd.
67	Shanghai Ziyan Alloy Application Technology Co., Ltd.

68	Yunnong (Shanghai) Chemical Co., Ltd.
69	Shanghai Futuo Trading Co., Ltd.
70	Luyi (Shanghai) Industrial Co., Ltd.
71	Reedi (Shanghai) Machinery Equipment Co., Ltd.

Source: Shanghai Mi

Shanghai Industrial Policy Service Center

Project Application Office: Director Fang

Phone-WeChat: 15618903837

*The policy content published in this article is compiled and interpreted by the Shanghai Industrial Policy S Center. If there are any omissions, please contact us.

Shanghai Industrial Policy Service Center : authoritative policy guidance + industrial park inves promotion platform

Policy support: Guide enterprises to apply for various government special subsidy funds, including Sha Science and Technology Commission, Economic and Information Commission, Development and F Commission, Commerce Commission and various district departments' policy funding projects, fes planning, key application, ensure project establishment, and obtain support funds.

Park investment promotion: Shanghai municipal parks, rewarding science and technology enterpris relocation, implementing tax rebates for software enterprises, signing high tax rebates, arranging for tal...s to down, and rent-free land and factories. Encourage talents to start businesses, register companies for 0..., p addresses free of charge, and guide the application for entrepreneurial policy subsidy funds.

上海产业政策服务中心
微信公众号：sh-hitech

Previous article: « Putuo District accelerates the Next article: Notice on the release of the "2023 Sha

EXHIBIT 105

Richest

Shanghai Ruizheng Chemical Technology Co., Ltd.

Main products: R&D and import and export of chemical raw materials

Product range

--No products released yet--

Related information

Enterprise real-name registration: Already registered

Honorary qualifications: 0

Enterprise economic nature: joint stock limited company

Contact Details

More

Shanghai Ruizheng Chemical Technology Co., Ltd.

Contact: Mr. Gong Wenjie

Telephone:

fax:

Mobile: 13788998540

Address: 4th Floor, Building 5, No. 999, Jiangyue Road, Minhang District

发送留言 收藏企业

Company

Shanghai Ruizheng Chemical Technology Co., Ltd.

Shanghai Ruizheng Chemical is a chemical product manufacturer and trader with a l At the end of the last century, with the development of China's economy and the gradua improvement of the international environment, my country's commodity structure was a a large number of commodities went to the international market. A large number of dor material manufacturers set their sights on the international market. Xiangshan Pharmace Technology, the predecessor of Richest Group, came into being. Under the leadership of manager, we established our own foreign trade department, and with the loose environ international market after 1996, we brought our products to the foreign market. Later, with the continuous expansion of the market scope, it nearly 100 countries and regions in America, South Asia, Africa and Europe. After the millennium, with the favorable conditions of China's ac the WTO, we established Shanghai Ruizheng Chemical in Shanghai Pudong Free Trade Zone. The company also ushered in a new starting po company's overseas business has a qualitative improvement. In recent years, market competition has become increasingly fierce. Realizing th controlling raw materials and establishing our own production bases and R&D centers can we stand firm in the future wave of international we have successively established our own raw material production bases in Shandong, Shaanxi, Henan, Hunan, and Jiangsu, and established R&D centers in cooperation with major universities. Improve the company's competitiveness and product strength. Today, the Internet econ become a hot topic of people's attention. We have also joined the wave of Internet development and presented our best products to overse through the Internet. At the end of 2015, with the formal entry into force of the WTO agreement, China's market will be fully open. This can b a difficulty for us foreign trade companies, but also an opportunity. Facing this opportunity, our company has effectively integrated its own p successively established Shanghai Zhizhi New Materials and India Branch to better meet this challenge.

Company Name: Shanghai Ruizheng Chemical Technology Co., Ltd.

Economic nature Limited by Share Ltd

Business model: Manufacturers, Traders,

Main Products: R&D and import and export of chemical raw materials

Annual turnover: 10 million-50 million

Number of 51-100 people

Filing information

Real-name registration

Enterprise real-name registration: 2017-01-05 Passed real-name registration

Recorded content: Business license Applicant Information

Business information The business information verification data of the enterprise 天眼查 is pr

Company Name	Shanghai Ruizheng Chemical Technology Co., Ltd.	Company Address	Room 402, Building 5, No. 999, Jiangyue I Minhang District, Shanghai
Registered capital	10 million (RMB)	Date of Es	

Shanghai Ruizheng Chemical Gong Wenjie Chat Now!

Registration Number	913100005887056416	Legal representative	Gao Chandi
Registration Authority	Minhang District Market Supervision and Administration Bureau	Company Type	Limited Liability Company (Natural Perso Investment or Holdings)
Business Term	2012-01-09/Long-term	Registration Status	Continuation
Business Scope	Licensed projects: food business; import and export of goods; import and export of technology. (For projects that re approval according to the law, business activities can only be carried out after approval by relevant departments. The specific business projects are subject to the approval documents or licenses of relevant departments) General projec engaging in technical development, technical consulting, and technical services in the fields of chemical technology computers, sales of chemical raw materials and products (except dangerous chemicals, monitored chemicals, firewor firecrackers, civilian explosives, and precursor chemicals), laboratory equipment, mechanical equipment, instruments meters, electronic products, communication equipment, decorative materials, plastic products, auto parts, and daily necessities, computer network engineering, e-commerce (not allowed to engage in value-added telecommunication financial services), business consulting (except brokerage), domestic freight forwarding services, retail of edible agric products, sales of food additives, and leasing of non-residential real estate. (Except for projects that require approval according to the law, business activities can be carried out independently in accordance with the law with a business license)		
Company label	Continuation		

Autobiography Qualification

Company Reviews

No reviews yet

I want to comment

Consultation hotline: 0571-87759741/81021675

EXHIBIT 106

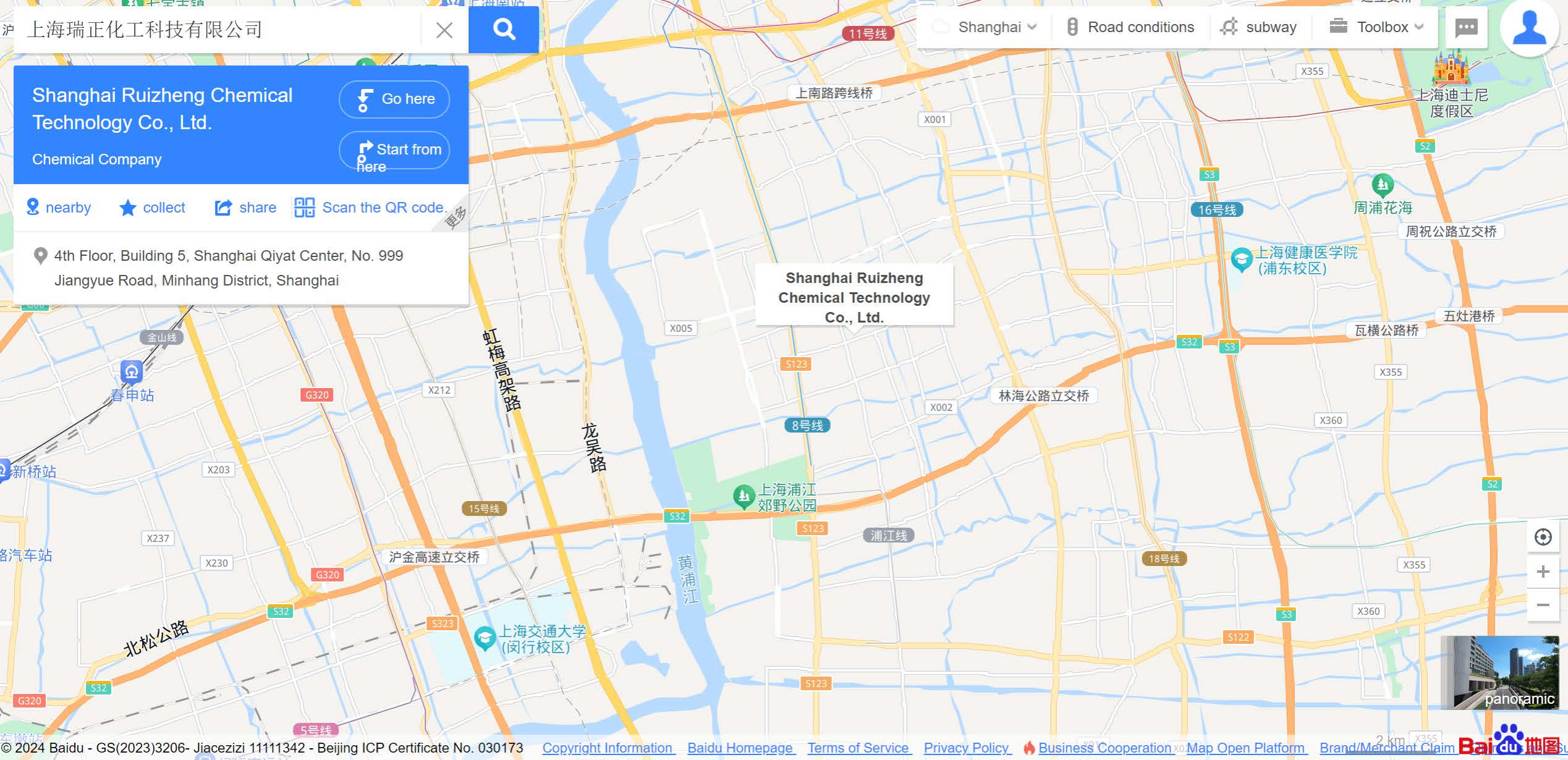


EXHIBIT 107

13 SOM：漕河泾开发区浦江高科技园总体规划

2017-02-14

Caohejing Development Zone
Pujiang Hi-Tech Park Masterplan

漕河泾开发区浦江高科技园总体规划

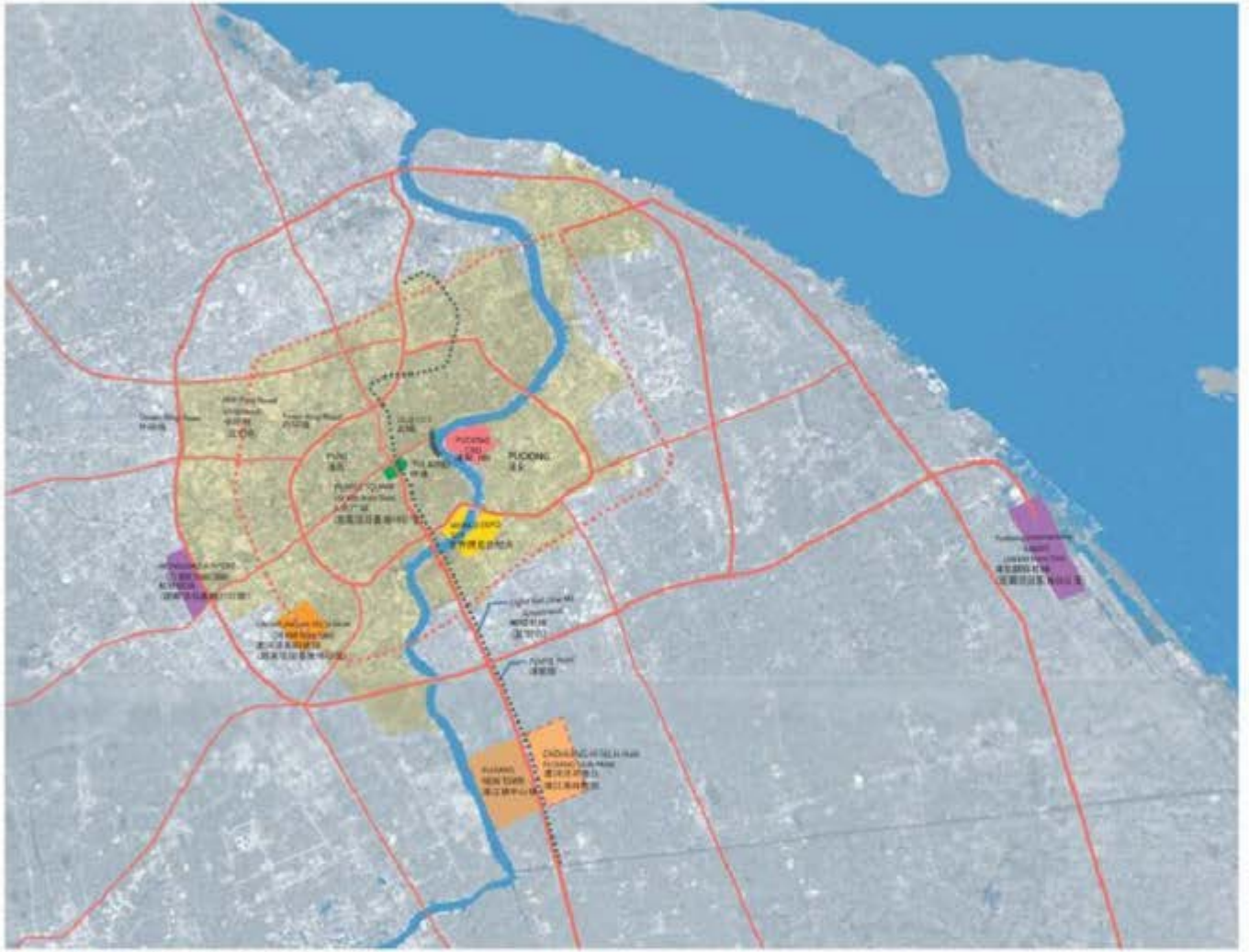
May 2008

Planning Background & Context
规划背景与区域环境

Caohejing Development Zone
Pujiang Hi-Tech Park Masterplan

漕河泾开发区浦江高科技园总体规划

May 2008



Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

0 1.25 2.5 5 10km N

Masterplan Report 20th February 2024
总体规划报告书 二零零四年二月二十日

Building A Vision

建设展望

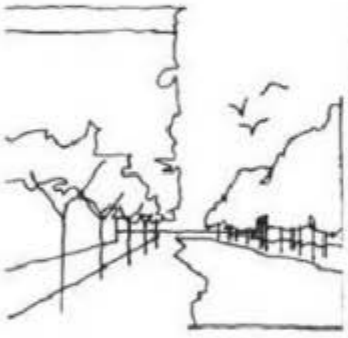
Creating Identity
空间的可识别性

Ecology as Amenity
生态化为休闲设施

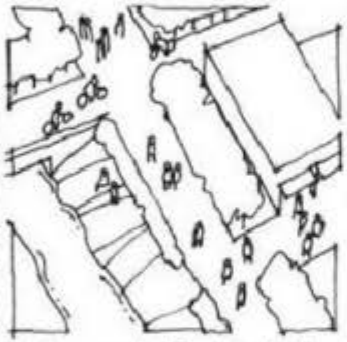
Plan for Efficiency
高效率的规划

Promote Liveability
提升居住的适宜性

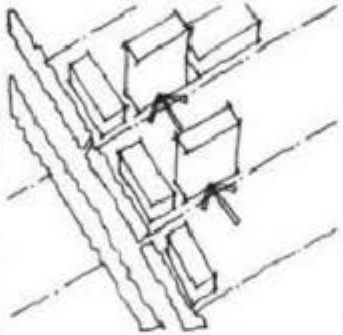
Regional Integrity
建立整合性



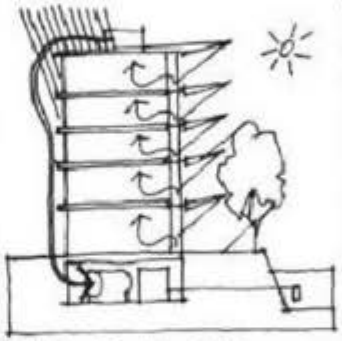
Ecological Sustainability
生态可持续性



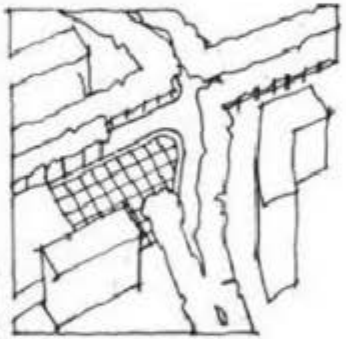
Environmental Sustainability
环境可持续性



Economic Sustainability
经济可持续性



Building Sustainability
建筑可持续性



Cultural Sustainability
文化可持续性

Caohejing Development Zone:

Optimizing The Structural Planning

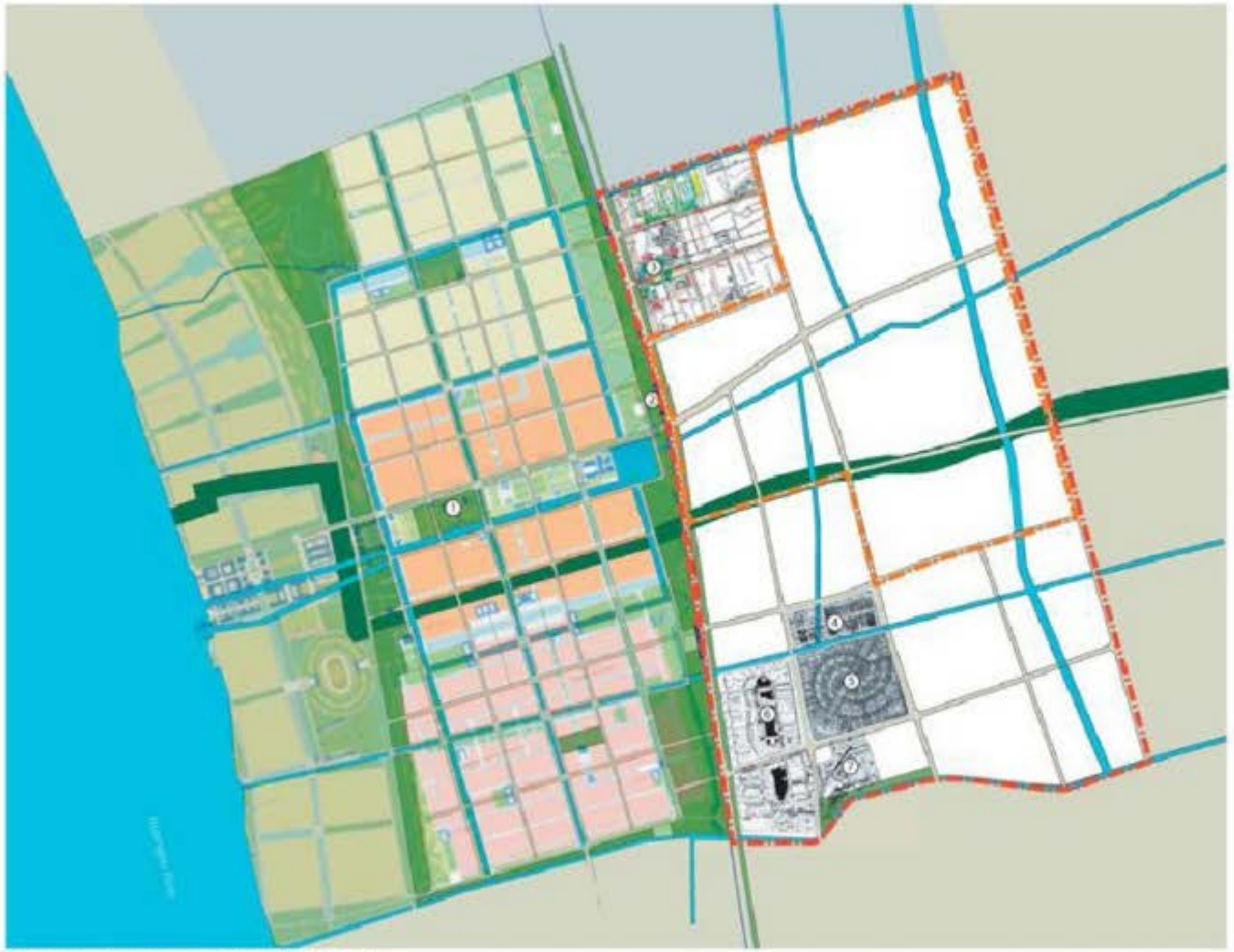
漕河泾开发区：结构规划的优化

Planning Design Requirement: Optimizing Structural Plan
规划设计要求：结构规划优化

- Introduces advanced planning concept
- Treats well the relationship with Pujiang Town and the forest in the neighborhood
- Details the master layout of "two axes, one core and two stretches"
- Improves the transportation and circulation system
- Organizes various functions within the Park
- Handles relationships between reserved project and new project and between functions and landscape
- Optimizes the role of rivers
- Creates complete planting system and ensures landscape and environmental quality
- Specifies environmental protection principal and measures
- Proposes workable public service system and its implementation principles

- 以漕河泾开发区浦江高科技园结构规划的总体布局为基础，以先进的规划理念进行园区结构布局优化。处理好与浦江镇及其周围片林的关系。
- 进一步深化“二轴、一核、两片”的总体布局。
- 完善园区道路交通组织，处理好与区域道路交通的关系。
- 合理组织园区内部各项功能。
- 处理好保留项目与新建项目和园区功能组织及景观的关系。
- 充分发挥园区内河道在交通和景观上的作用。
- 形成完善的绿化系统，保证园区的景观与环境品质，确定环境保护的原则与措施。
- 提出合理的公共服务系统及其实施原则。

Current Reserved Project
现存保留项目



① Pujiang New Town 浦江镇中心镇
② Light Rail Line M8 规划轻轨M8线
③ Export Processing Zone 出口加工区中心
④ Ri Yue Ming Co. 日月明公司
⑤ 863 Software Park 863软件园
⑥ Weihao Investment Co. 维豪投资公司
⑦ Investment Co. Admin. 投资公司业务楼

Water 水体
Forest 片林
Gas Line Control Buffer 天然气管控制带
Planning Boundary 规划范围 (1078 ha.)
Detail Planning Boundary 详细规划范围 (511 ha.)

0 100 250 500m 1km N

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Structural Planning Framework
结构规划框架

PUJIANG TOWN
浦江镇
Commercial Area
Residential Area

PUJIANG HI-TECH PARK
浦江高科技园
Public Service Center
Technology Park
Residential Area
Export Processing Zone
Gateway Place
Pujiang Central Park

GREEN AND WATER SYSTEM
绿化与水系
Water
Green
Forest
Gas Line Control Buffer

M8 Light Rail Line:
SDIM suggests West side of Pujiang Rd. to better service Pujiang Town

Cross River Tunnel Suggestion:
SDIM suggests option 1 or 3 as present traffic impact on the site

Planning Boundary (107Ha.)
Detail Planning Boundary (51Ha.)

Cooljejing Development Zone Pujiang Hi-Tech Park Masterplan

Overall Masterplan
总体规划图

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Green System Plan
绿地系统图

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan

Road System Plan
道路系统图

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Function Analysis Plan
功能分析图

Transportation Organization Plan
交通组织图

Cauhejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Pujiang Hi-Tech Park:

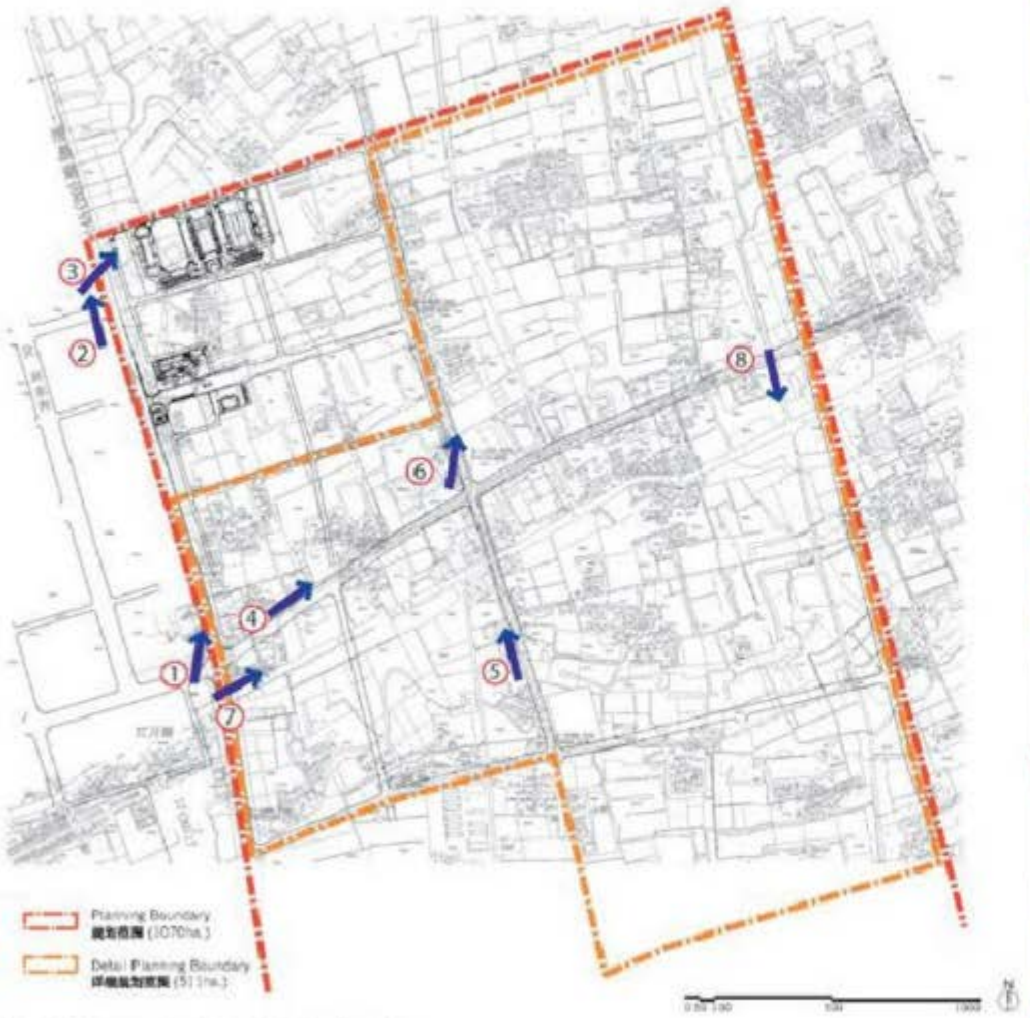
Detailed Planning Design

浦江高科技园：详细规划设计

Detailed Planning Design Requirements
详细规划设计要求

- Proposes detailed planning for the Technology Park for site area of 350 Ha
- Proposes detailed planning for the Public Service Center for site area of 150 Ha
- Defines the internal functional layout of the Public Service Center in relationship with the surrounding functional zones
- Proposes design principles for architecture forms and landscape design
- Upgrades the environmental quality by utilizing green and water systems
- Achieves gross FAR for Technology Park of 0.8 and for Public Service Center of 0.9
- Proposes the relevant technical and economic indexes

- 对规划范围内出口加工区和保留项目以外的用地进行详细规划，详细规划范围为西至浦星路、南至立联路、东至万芳路、北至出口加工区和中心河及三鲁路、立联路、万芳路、浦友路围成的地块，占地约350公顷。
- 详细规划范围内应设置占地约150公顷的公共服务中心，为园区提供研发基地和综合配套服务功能，主要设置包括科研，开发，信息，设计，贸易，产品展示，学术交流，教育培训，物流及相应的文化娱乐，休闲，餐饮，商住，办公和生活服务设施。
- 确定公共服务中心的内部功能布局，解决好其与周围功能区的关系。
- 提出建筑形式，城市家具和环境空间设计原则，塑造良好的景观形象。
- 充分利用绿化和水系提升环境品质。
- 高新技术产业用地毛容积率0.8，公共服务中心用地毛容积率0.9。
- 提出相关的技术经济指标体系。



Planning Control Elements
规划控制要素

Overall Illustrative Plan
详细规划总平面图

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Function Organization
功能组织图

Detail Planning Boundary
详细规划范围 (511 ha.)

Public Service Center
公共服务中心 (153 ha.)

Technology Park
高科技园 (358 ha.)

0 500 1000m N

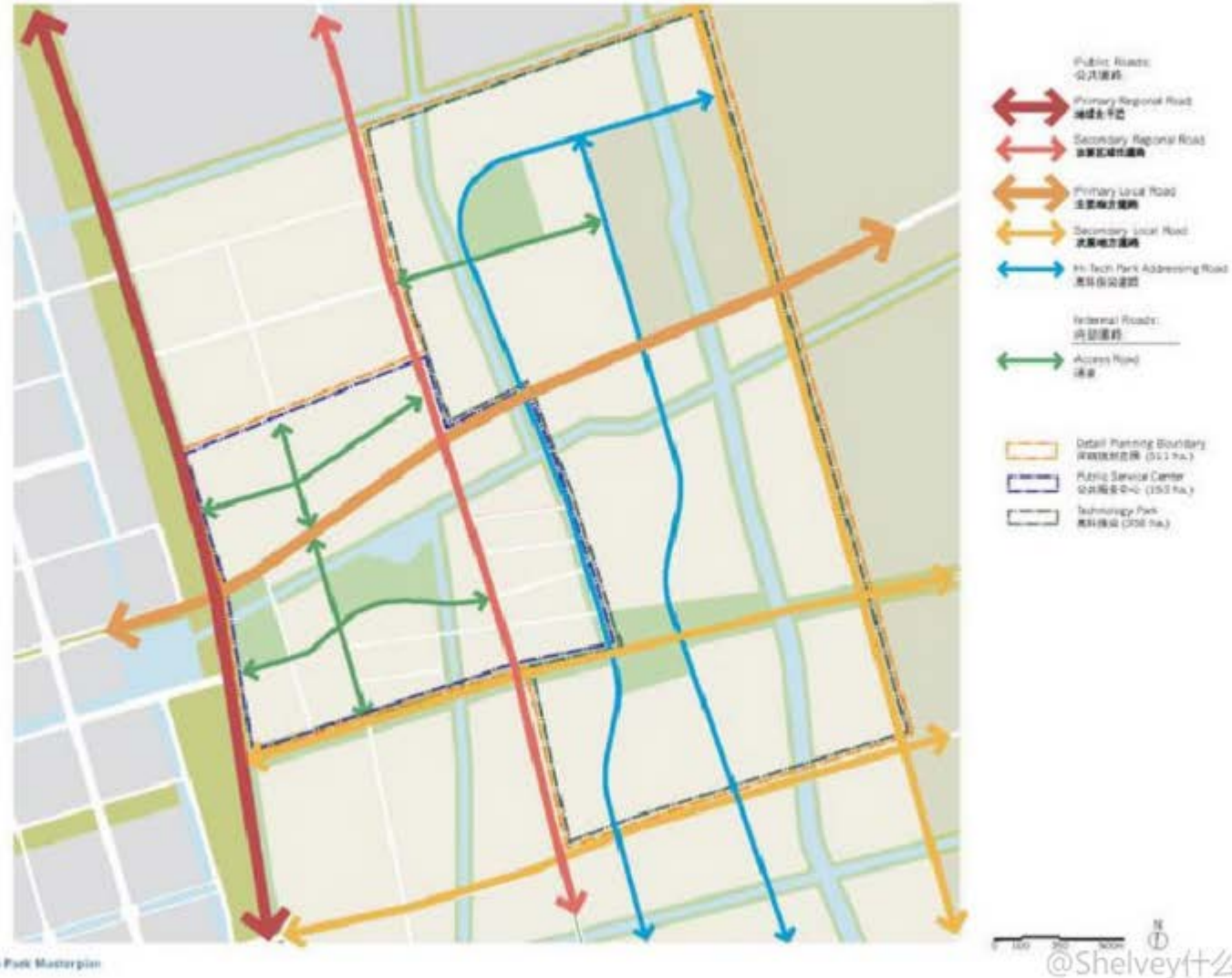
Cashejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

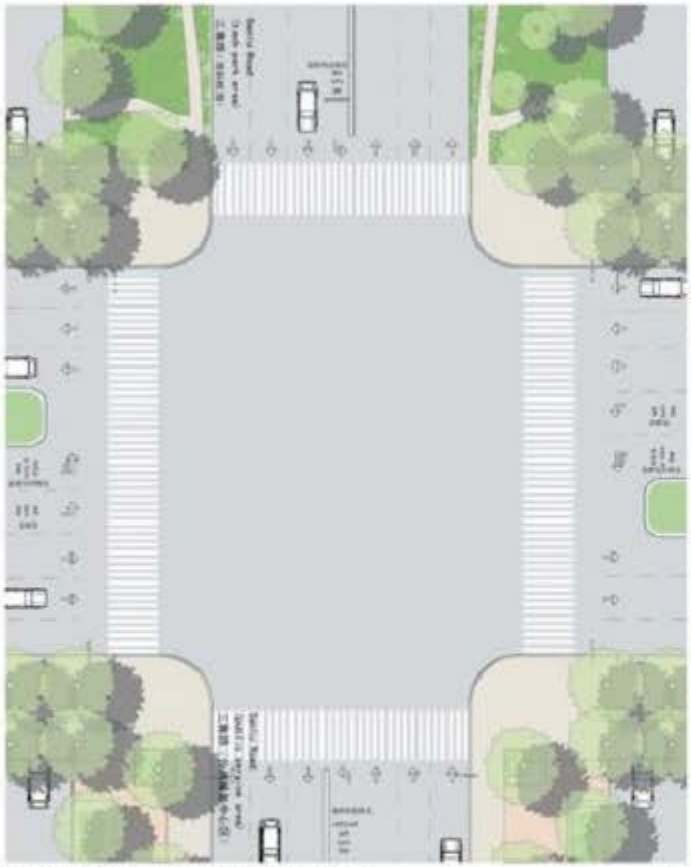
Landscape Analysis
景观分析图

Note: Detailed landscape design in Chapter 4 and 5

附注：详细景观设计详第四章与第五章

Road Network Plan
道路网络图





Node C: Chenhang Road - Sanlu Road Intersection
节点C：陈行路 – 三鲁路 交叉口

Node D: Liyue Road - Sanlu Road Intersection
节点D：立跃路 – 三鲁路 交叉口

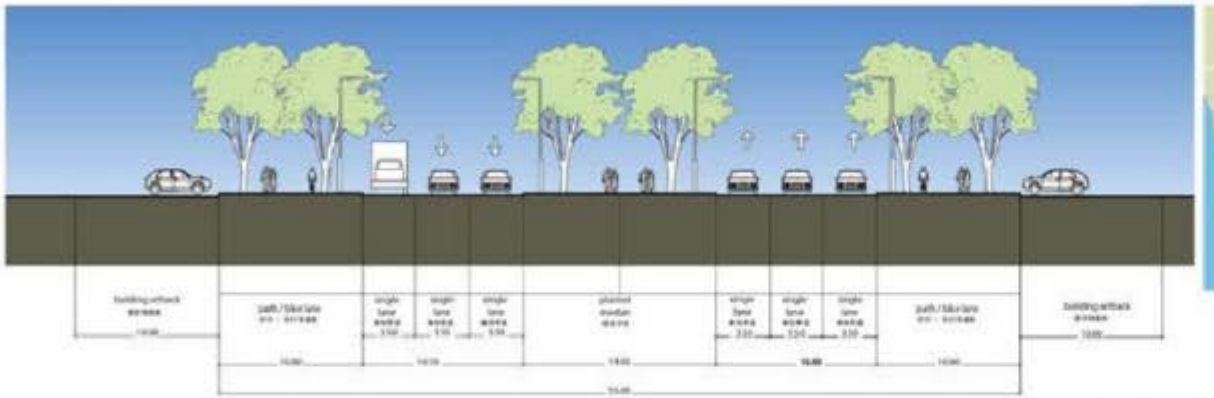
Key Map
缩影地图

Node A: Puxing Road - Chenhang Road Intersection
节点A：浦星路 - 陈行路 交叉口

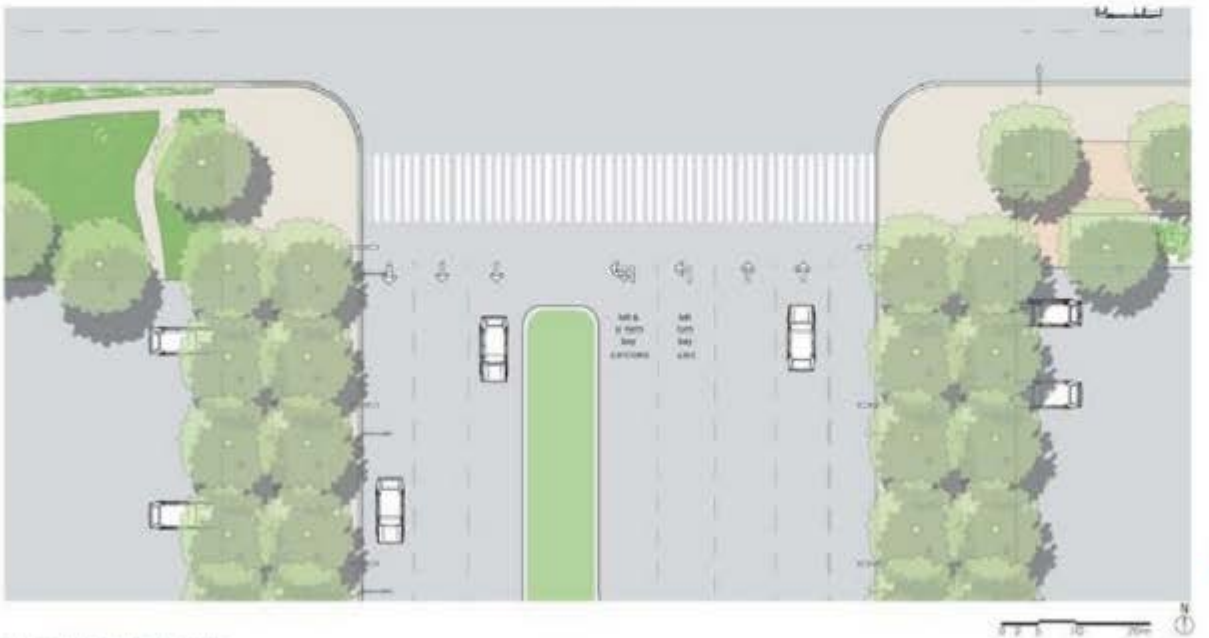
Node B: Puxing Road - Luyue Road Intersection
节点B：浦星路 - 立跃路 交叉口

Key Map
缩影地图

Road Sections
道路剖面图

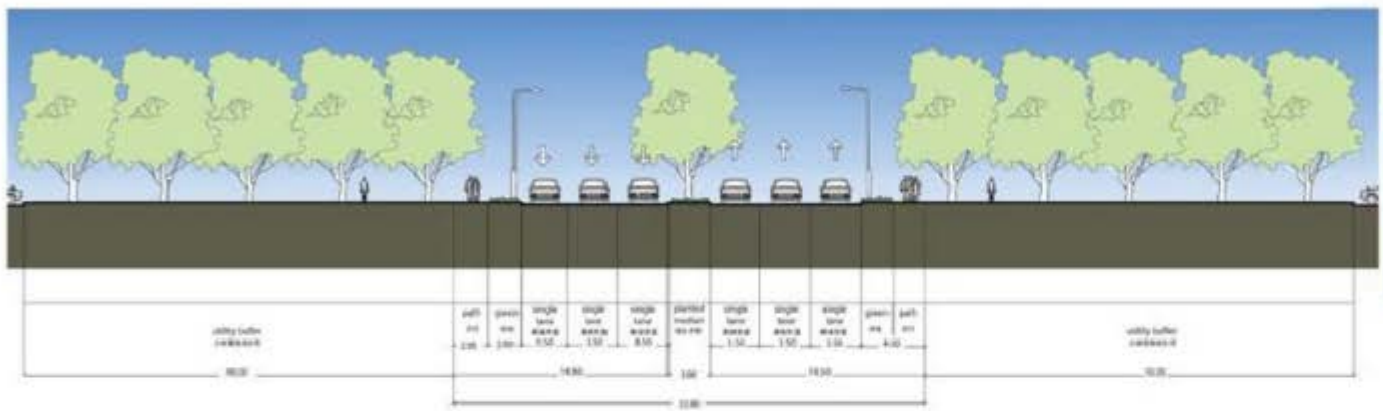


Key Map
缩影地图



Chenhang Road
陈行路

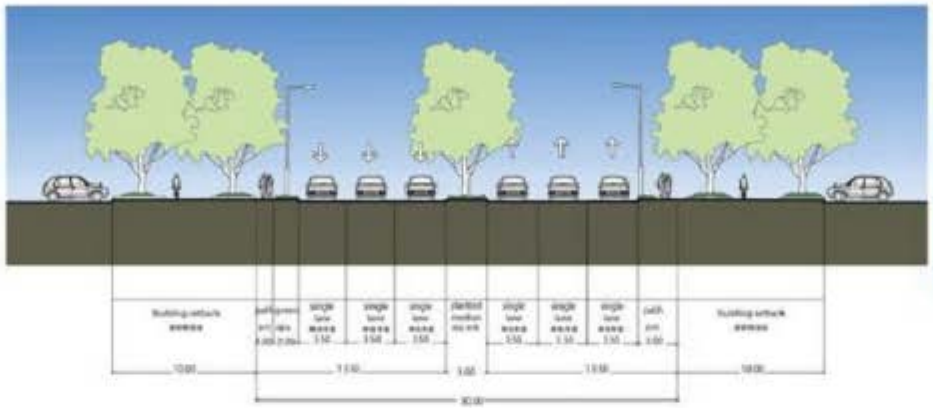
Road Sections
道路剖面图



Key Map
缩影地图

Liyue Road
立跃路

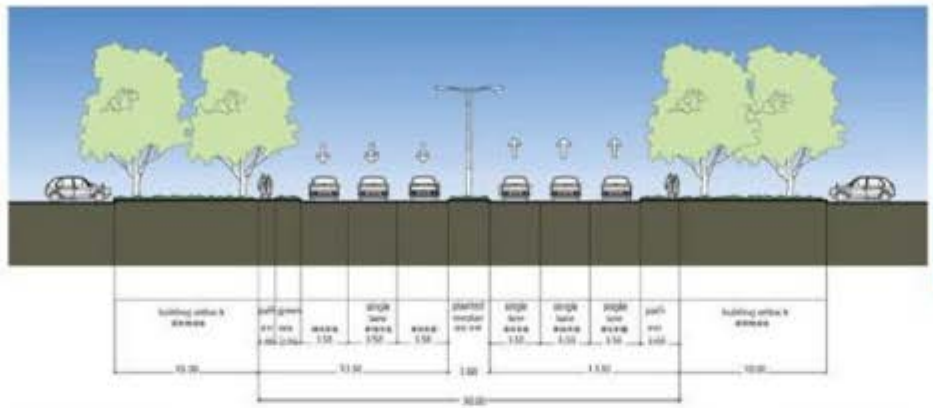
Road Sections
道路剖面图



Key Map
缩影地图

Santu Road (Public Service Area)
三鱼路（公共服务中心区）

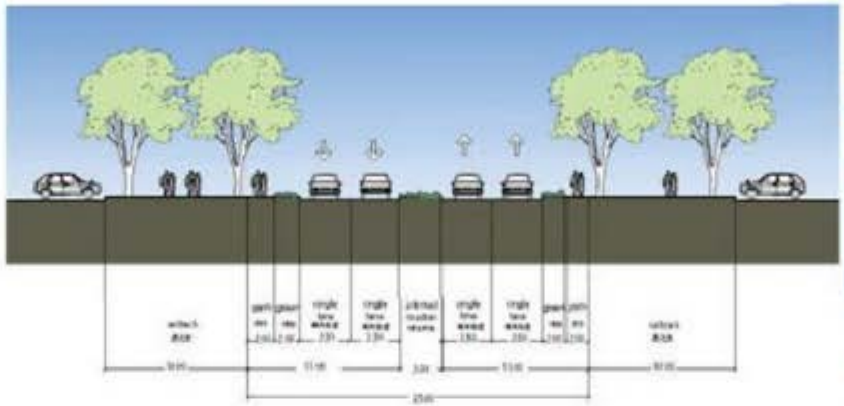
Road Sections
道路剖面图



Key Map
缩影地图

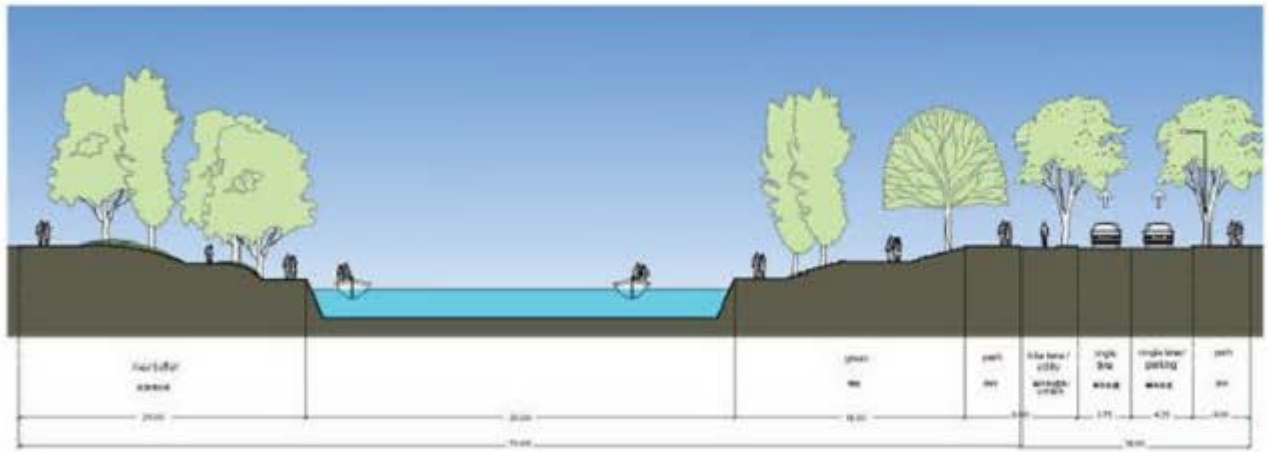
Santu Road (Industrial Park)
三鲁路（高科技园区）

Road Sections
道路剖面图



Key Map
缩影地图

Tech Park Addressing Road
高科技园支道



Canalside Road
河畔支道

Public Service Center:

Detailed Design for 100ha Key Area

公共服务中心：100公顷重要节点设计

Overall Public Service Center Aerial View
总体公共服务中心鸟瞰图

100 Ha Detailed Key Area
100 公顷重要节点详细设计范围

Key Area Master Plan
重要节点详细设计平面图

1. M8 Line Lrt Station
2. Office/Commercial
3. Shopping Center/Winter Garden
4. Gateway Park
5. Shopping Center/F&B, Gateway Plaza South
6. Office/Commercial/Gateway Plaza North
7. Hotel
8. Exhibition Center
9. Office
10. Tech Park Office
11. Tech Park Office
12. Office
13. Office
14. Signature Tower
15. Office, Entertainment/F&B
16. Central Garden/Lake
17. Villa
18. Multi story Apartment
19. Multi story Apartment
20. Villa

100 Ha Detailed Key Area

0 50 100 200m

N

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan

Ecological Sustainability
生态可持续性

Environmental Sustainability
环境可持续性

Economic Sustainability
经济可持续性

Building Sustainability
建筑可持续性

Cultural Sustainability
文化可持续性

Landscape Visual Analysis
景观视线分析

Gateway Landscape:
Identity, Response To New Town, Etc.

入口景观:
创造形象，反应浦江镇

Signature Tower
标志性塔楼

focal Point, Creating The Center
焦点，创造中心区

Central Park
中央公园

Amenity and activity
休闲设施与活动

Pedestrian and Visual Corridors
行人与视线走廊

Promote pedestrian activity
促进行人活动

Arrival And Parking
抵达区与停车区

Differentiated Arrival And Parking Landscape Treatment
区分抵达区与停车区景观的处理

100 Ha Detailed Key Area
100 公顷重要节点详细设计范围

0 50 100 200m N

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Gateway Plaza North
北侧入口广场

Detailed Area Design
详细节点设计

Central Park & Lake
中央公园与湖泊

Exhibition & Conference Center
会展中心

Residential District
住宅小区

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园总体规划

Technology Park:

Detailed Design for 64ha Key Area

高科技园：64公顷重要节点详细设计

Overall Technology Park Aerial View
总体高科技园鸟瞰图

64 Ha Detailed Key Area
64公顷重要节点详细设计范围

Key Area Aerial View
重要节点鸟瞰图

64 Ha Detailed Key Area
64公顷重要节点详细设计范围

Key Area Master Plan
重要节点详细设计平面图

① Administration Office
行政办公楼

② Office
办公

③ R&D/Light Manufacturing Compound
研发/轻制造业组团

④ Canteen, Common Facilty
餐厅食堂，公共设施

⑤ Commercial, F&B
商业，餐饮

⑥ Plaza
广场

⑦ Pedestrian Walkway
行人道

⑧ Lake
湖泊

64 Ha Detailed Key Area
64公顷重要节点详细设计范围

0 50 100 200m N

Caohejing Development Zone Pujiang Hi-Tech Park Masterplan
漕河泾开发区浦江高科技园区总体规划

Ecological Sustainability
生态可持续性

Environmental Sustainability
环境可持续性

Economic Sustainability
经济可持续性

Building Sustainability
建筑可持续性

Cultural Sustainability
文化可持续性

Landscape Visual Analysis
景观视线分析

组群
Cluster

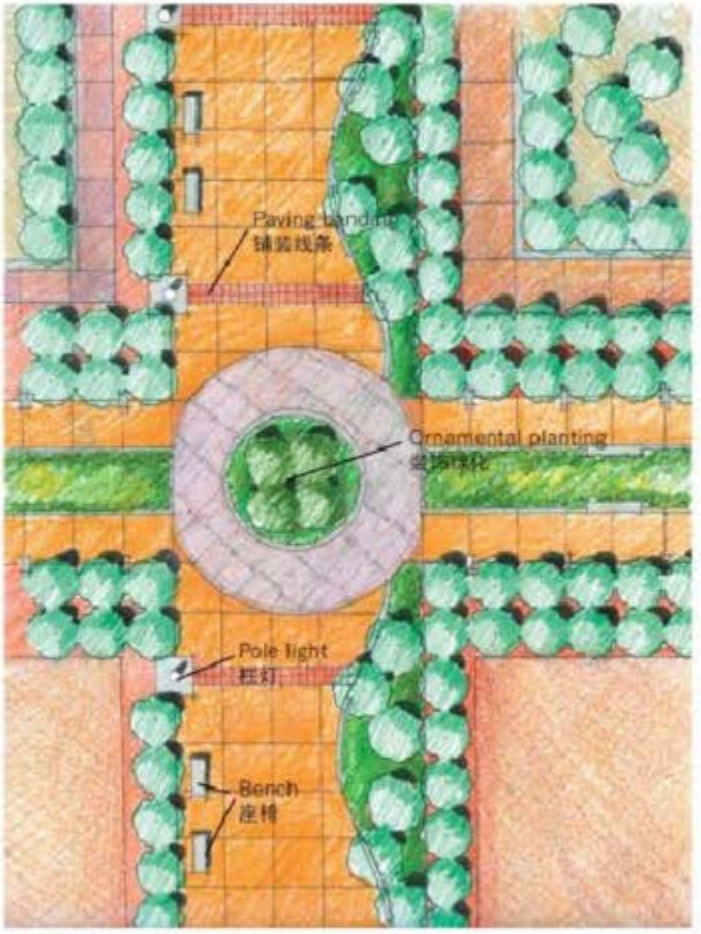
可及度
Access

可见度
Visibility

到达
Arrivals

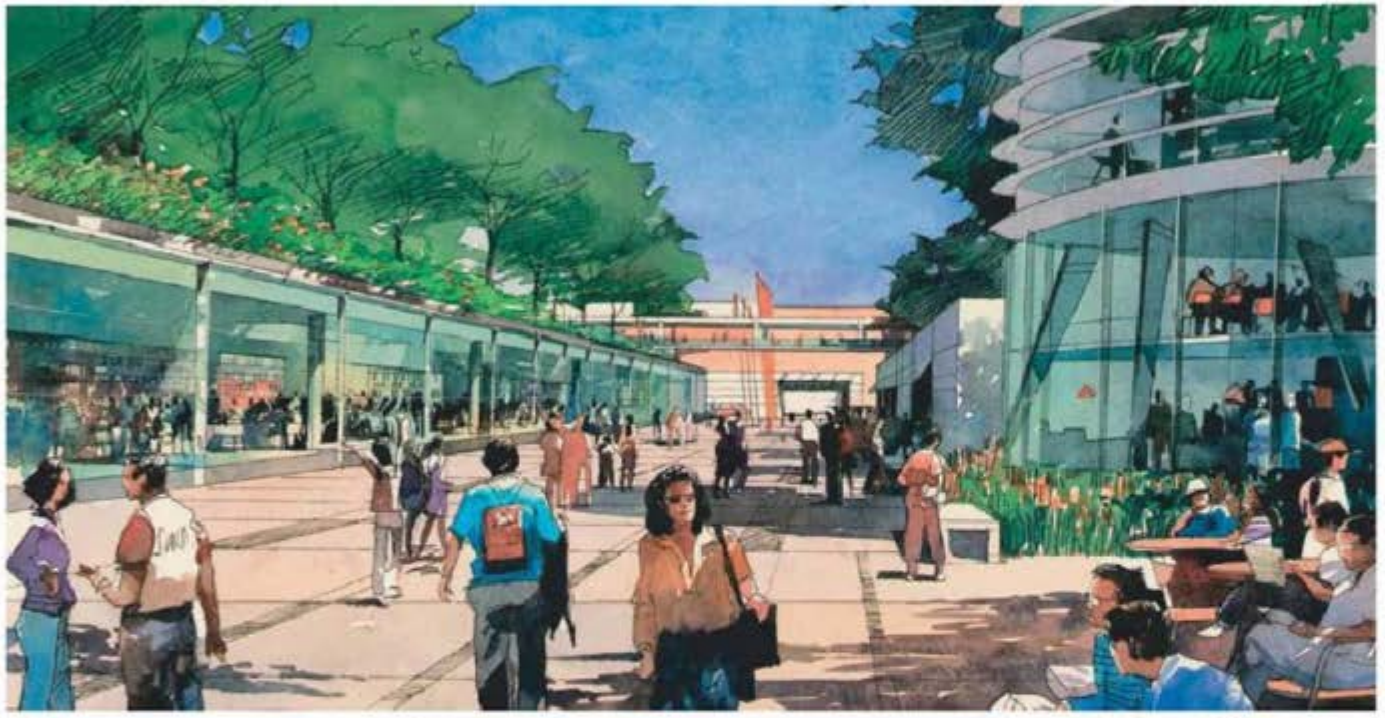
朝向
Orientation

Landscape Design: The Plaza
景观设计： 广场



Technology Park Office
高科技园办公楼

Research & Development Compound
科研与发展组团



THE END

EXHIBIT 108

Shanghai Caohejing Hi-Tech Development Zone

Location: Xuhui District, Shanghai
Date of establishment: 1984-07
Planned area: 14.28 square kilometers Park level: National park
Park theme: science and technology park, industrial park, e-commerce park, health industry park
Enterprise Development Fund:
108,500 yuan/year (estimated)

Policy incentives/subsidies:
Please log in to view the policy rewards/subsidies you can get.

On-site certification

Office costs	★★★★★
Service Package	★★★★★
Convenient transportation	★★★★★
Tax Benefits	★★★★★

PARK INTRODUCTI
INDUSTRY ORIENT
Mobile Apps
LOCATION ADVANT
Sticky Page
PREFERENTIAL POL
SERVICE GUARANT

TRANSPORTATION | SUCCESS STORIES

.. Foreign Investment Enterprises ..

1. For productive foreign-invested enterprises located in Caohejing Development Zone, the enterprise income tax rate is reduced to 15%. For enterprises with an operating period of more years, the enterprise income tax rate is exempted in the first and second years from the year of profit-making, and the enterprise income tax rate is reduced by half from the third to the fi After the expiration of the period, if the output value of the export products reaches more than 70% of the output value of the enterprise products in the same year, the enterprise income is 10%; for advanced technology enterprises, the enterprise income tax rate is reduced by half for an additional three years. If the tax rate after the reduction is less than 10%, it is levied rate of 10%.
2. When foreign investors remit the profits distributed from the enterprise abroad, they are exempt from income tax. If the foreign investors of a foreign-invested enterprise directly reinves profits obtained from the enterprise in the enterprise to increase the registered capital, or use it as capital investment to start other foreign-invested enterprises, and the operating period i less than 5 years, upon application by the investor and approval by the tax authorities, 40% of the income tax paid on the reinvested portion will be refunded. If the reinvestment is in an a technology enterprise or an export enterprise with an operating period of not less than 5 years, the entire income tax paid on the reinvested portion can be refunded.
3. If the R&D expenses of foreign-invested enterprises increase by more than 10% compared with the previous year, they can be deducted from the payable income tax of the current yea of the actual amount of R&D expenses incurred in the current year upon review and approval by the tax authorities.
4. Import tariffs and import value-added tax policies.

.. High-tech enterprise ..

1. For enterprises recognized as high-tech enterprises by the Municipal Science and Technology Commission, income tax shall be levied at a reduced rate of 15% from the date of recogniti
2. For high-tech enterprises, if the output value of export products reaches more than 70% of the total output value of the year, income tax shall be levied at a reduced rate of 10% upon verification by the tax authorities.
3. Newly established high-tech enterprises shall be exempted from income tax for two years from the year of production upon approval by the tax authorities.

.. Technology companies settled in the Entrepreneurship Center..

1. Enterprises entering the Entrepreneurship Center can enjoy the corresponding preferential policies of the Development Zone and the preferential policies of Xuhui District for technology enterprises;
2. Approved incubation enterprises can receive certain financial support from the District's Science and Technology Development Fund for a period of 3 years.

.. Enterprises founded by returned students ..

1. Enterprises founded by returned students that have been reviewed and approved by the Shanghai Foreign Investment Working Committee can enjoy the relevant preferential policies fo invested enterprises.
2. The investment and registered capital of enterprises founded by returned students can be appropriately reduced according to actual needs. The minimum registered capital for consultin service companies is US$12,000, and the minimum registered capital for production companies is US$60,000.

3. Enterprises founded by returned students who have studied or worked overseas for more than 8 years (including 8 years), registered in Shanghai after January 1, 2002, with a registere of more than RMB 500,000 (or equivalent foreign currency), and mainly engaged in software development or integrated circuit design, can apply for special funds for entrepreneurship assi from the Shanghai Information Technology Committee.

EXHIBIT 109

C4ADS
innovation for peace

LETHAL EXCHANGE: SYNTHETIC DRUG NETWORKS IN THE DIGITAL ERA

ABOUT C4ADS

C4ADS (www.c4ads.org) is a 501(c)(3) nonprofit organization dedicated to data-driven analysis and evidence-based reporting of conflict and security issues worldwide. We seek to alleviate the analytical burden carried by public sector institutions by applying manpower, depth, and rigor to questions of conflict and security. Our approach leverages nontraditional investigative techniques and emerging analytical technologies. We recognize the value of working on the ground in the field, capturing local knowledge, and collecting original data to inform our analysis. At the same time, we employ cutting edge technology to manage and analyze that data. The result is an innovative analytical approach to conflict prevention and mitigation.

LEGAL DISCL AIMER

The mention of any individual, company, organization, or other entity in this report does not imply the violation of any law or international agreement, and should not be construed as such.

COVER IMAGE

Front cover art by Nguyen Anh Nghiet

ABOUT THE AUTHORS

Michael Lohmuller is a Senior Analyst at C4ADS on the Natural Resources Cell, where he specializes in transnational narcotics networks. Michael received his undergraduate degree in History from Boston College and a Master's in Security Studies from Georgetown University. He has lived and worked in Colombia and Guatemala.

Nicole Cook is an Analyst at C4ADS on the Natural Resources Cell, where she specializes in transnational narcotics networks. Nicole received her undergraduate degree in International Relations and Chinese Studies from the College of William & Mary. She has lived and studied in China.

Logan Pauley is a former Analyst at C4ADS on the Natural Resources Cell, where he specialized in transnational narcotics networks. Logan received his undergraduate degree in Asian Studies from Centre College and a Master's in International Politics and China Studies from the Hopkins-Nanjing Center. He was formerly a Scoville Fellow in the China program at the Stimson Center. He has lived and studied in China and Taiwan.

ACKNOWLEDGEMENTS

C4ADS would like to thank all those who provided input and shared knowledge during the course of our research. The authors extend special gratitude to the peer reviewers of this report for their insightful feedback and advice. Finally, the authors are grateful to numerous others on the C4ADS team, whose support was invaluable throughout the writing of this report.

OUR TECH PARTNERS

C4ADS would also like to thank its technology partners, whose software and systems are integral to the integrity and quality of our research and analysis.

ANALYSIS POWERED BY Palantir aws WINDWARD

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The illicit synthetic drug networks that fuel the ongoing opioid epidemic in the United States continue to evolve and adapt to changing incentives and pressures, finding innovative ways to exploit technology and increased global interconnectivity. C4ADS investigated these drug supply chains, conducting extensive multilingual analysis of Chinese corporate entities, the clear web, and social media, in order to better understand the methods by which they operate. This research has led to several conclusions:

The digital age has had a transformative role in allowing synthetic drug networks to take root.

Fentanyl networks are among the world's first **digital native** drug networks. Global internet connectivity has opened a new era of drug distribution by facilitating direct-to-consumer transactions, rapid reaction to enforcement trends, and the delivery of retail, rather than wholesale, drug volumes through licit commercial delivery services. Fentanyl is readily discoverable for purchase on the clear web, though it is unclear how persistent this trend will be over time. Once established, digital interconnectivity makes it a relatively easy process for buyers and producers to communicate and transact directly, even though they may be located on opposite sides of the world.

Chemical and pharmaceutical companies producing illicit synthetic drugs are primarily located in China.

Many entities selling synthetic opioids on the open internet are **identifiable**, and can often be linked to formally registered businesses in China, home to one of the world's largest pharmaceutical industries.[1] Chinese entities have been able to produce and export illicit synthetic drugs with relative freedom for several reasons. For instance, until recently, many chemicals required to synthesize fentanyl were unregulated in China, and were therefore legal to manufacture and sell.

Entities producing and selling illicit synthetic drugs display common attributes and patterns of behavior online.

Our investigations into Chinese companies and networks potentially involved in the production of illicit fentanyl revealed that these entities exhibit similar characteristics. Chinese entities supplying illicit opioids are **overt**, and actively and openly advertise on the clear web. These same networks are **adaptive** and quickly respond to enforcement pressure or legal restrictions by adjusting advertising techniques or changing chemical formulas to develop substances that mimic the desired effect and fall outside of existing drug controls. Relatedly, many illicit fentanyl manufacturers are **diversified** and typically produce or sell a wide array of chemicals, pharmaceuticals, and controlled drugs.

Supply chains for illicit synthetic drugs have a global reach due to innovations in chemical synthesis and the exploitation of the international trade infrastructure.

The digital age and global trade have allowed Chinese synthetic drug networks to have a **transnational** reach and establish relationships with clients abroad. The synthesis of an ever-evolving array of chemical substances keeps producers one step ahead of international drug controls. The extreme potency of these substances also facilitates easy concealment in small packages and envelopes. In light of the volume of international mail and trade that occurs on a daily basis, it becomes a nearly impossible task to detect or interdict all illicit substances. These factors, however, are not unique to China, and the geographic scope of synthetic drug supply appears to be becoming more diffuse, with India, Mexico, and Southeast Asia's Golden Triangle region all emerging as new or potential production hotspots.

The emergence of fentanyl and other synthetic drugs has become a US and international public health crisis due to the convergence of complex, disparate global trends. The factors underlying the US opioid epidemic will continue to evolve as technology and chemical synthesis adapt to external pressures and incentives. Likewise, understanding, anticipating, and disrupting these global synthetic drug networks will require consistent adaptation and creative solutions.

ABBREVIATIONS & DEFINITIONS

Benzodiazepines	A class of psychoactive drugs that are intended to combat anxiety and insomnia. The most well-known benzodiazepines are Xanax and Valium.
Buyer	An individual purchasing opioids or other synthetic drugs
CAS	CAS: Chemical Abstracts Service
CBP	CBP: United States Customs and Border Protection
CDC	CDC: United States Centers for Disease Control and Prevention
Chemical Aggregator	An online platform that brings together product information, product listings, company profiles, and often e-commerce capabilities from different companies.
Chemical Registration Number	A numeric, universal identifier used to codify chemical substances.
Clear Web	The collective internet that is openly accessible on standard web browsers and is indexed by standard online search platforms.
CND	The United Nations Commission on Narcotic Drugs
Custom Synthesis	A service offered by chemical and pharmaceutical companies, sometimes licitly and sometimes illicitly, for clients to request synthesis, production and/or sale of chemical substances not listed on a given website.
Dark Web	A collection of websites not accessible by standard web browsers and not indexed by clear web online search platforms. Encrypted browsers, such as Tor, are required to access dark web sites.
DEA	United States Drug Enforcement Administration
Deep Web	A collection of websites that are accessible on standard internet browsers but are not indexed by standard search platforms.
Drug Scheduling	The practice of classifying, or listing, a drug based on its medical utility and potential for harm.
E-commerce Platforms	Websites used to engage in the electronic buying or selling of products over the internet.
Fentalogue	A portmanteau of fentanyl and analogue. A chemical substance that has a base chemical structure of fentanyl, with particular changes made to the chemical make-up to create a different form of the drug, producing varied effects for users. Sometimes referred to as a "fentanyl-related substance."
Fentanyl	A short-acting, highly potent synthetic opioid with narcotic analgesic properties.[2]
INCB	International Narcotics Control Board
Masked Precursors	Term for precursors that are uncontrolled but can be easily converted into a controlled precursor. Also referred to as "pre-precursors." [3]

Novel Synthetic Opioids	An emerging class belonging to new psychoactive substances (NPS) that includes various analogs of fentanyl and newly emerging non-fentanyl compounds.
NFLIS	The National Forensic Laboratory Information System (NFLIS), a program of the DEA that collects data relevant to illicit drug seizures, overdoses, and toxicology reports.
NPS	New Psychoactive Substances, as defined by the UNODC, are "substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat." According to the UNODC, "the term 'new' does not necessarily refer to new inventions — several NPS were first synthesized decades ago — but to substances that have recently become available on the market."[4]
Online Marketplace	An online platform where a buyer is able to purchase goods.
Opioid	A generic term applied to opiates and their synthetic analogues, which can be semi- or fully synthetic, with actions similar to those of morphine. Synthetic opioids are structurally diverse, can be extremely potent, and include a variety of substances, including a number of fentanyl derivatives.[5]
Precursor Chemical	Broadly refers to chemicals that are employed in the manufacture of drugs.[6]
PAI	Publicly available information, which is any general media, social media, public record, commercial database, gray literature, audio, imagery or expert interview that can be legally purchased, obtained, or created by the public.[7]
Research Chemical	A term used to refer to a chemical substance which is not sold for human consumption, but rather for research purposes. This terminology is often used by illicit drug vendors to maintain plausible deniability in online advertisements.
Synthetic Cannabinoid	A synthetic chemical that, upon consumption, binds to the same receptors as cannabis. Illegal Synthetic Cannabinoids (often known as "incense," "spice," or "K2") are often diluted into liquid spray, applied to dried vegetable matter, and sold as cannabis alternatives.
Synthetic Cathinone	A synthetic chemical that is structurally related to the substance found in khat, a plant grown in East Africa and southern Arabia. Synthetic Cathinones (often known as "bath salts") are often used as cheaper substitutes to stimulants.
Synthetic Drug	Synthetic drugs are chemical compounds produced in a laboratory. They can be produced commercially by drug manufacturers for valid medical purposes or illegally in clandestine laboratories for recreational use.
UNODC	The United Nations Office on Drugs and Crime
Vendor	A single seller of products, either a company or an individual.

METHODOLOGY

The research contained in this report is the result of extensive multilingual analysis of publicly available information. To understand global supply chains for illicit synthetic drugs, we collected information from a wide array of sources, including social media, e-commerce platforms, company websites, corporate records, cryptocurrency transactions, and the dark web. Our research was also informed through discussions with a number of partners and collaborators in government, academia, the private sector, and international organizations.

We employed a variety of tools and software to gather and analyze data, including Palantir to assess connections between entities and analyze large datasets. We relied on Webhose to collect data from marketplaces on the dark web and, when necessary, accessed these marketplaces directly for follow-up research. The tool Cobwebs was particularly valuable for researching known identifiers of entities of interest and discovering additional linkages in open source media, including on social media accounts. Finally, CipherTrace was used for blockchain analysis of Bitcoin transactions.

In order to gain a more comprehensive view of illicit synthetic drug supply chains, we collected and analyzed data on all identified synthetic drug seizures globally from January 1, 2017 to July 31, 2019.[8] This database, the **C4ADS Synthetic Drug Seizure Database**, contains 4,621 seizures, 1,333 of which included fentanyl.

We also built a **Synthetic Drug Supplier Database** containing information on 103 entities that openly advertised synthetic drugs on a variety of websites, prioritizing those located in China. This database – which includes physical addresses, affiliated individuals, e-mail addresses, and, when available, corporate registry information – was not intended to represent the entire marketplace for illicit synthetic drugs online, but rather to reveal commonalities in the operations of synthetic drug suppliers.

Gaps & Biases

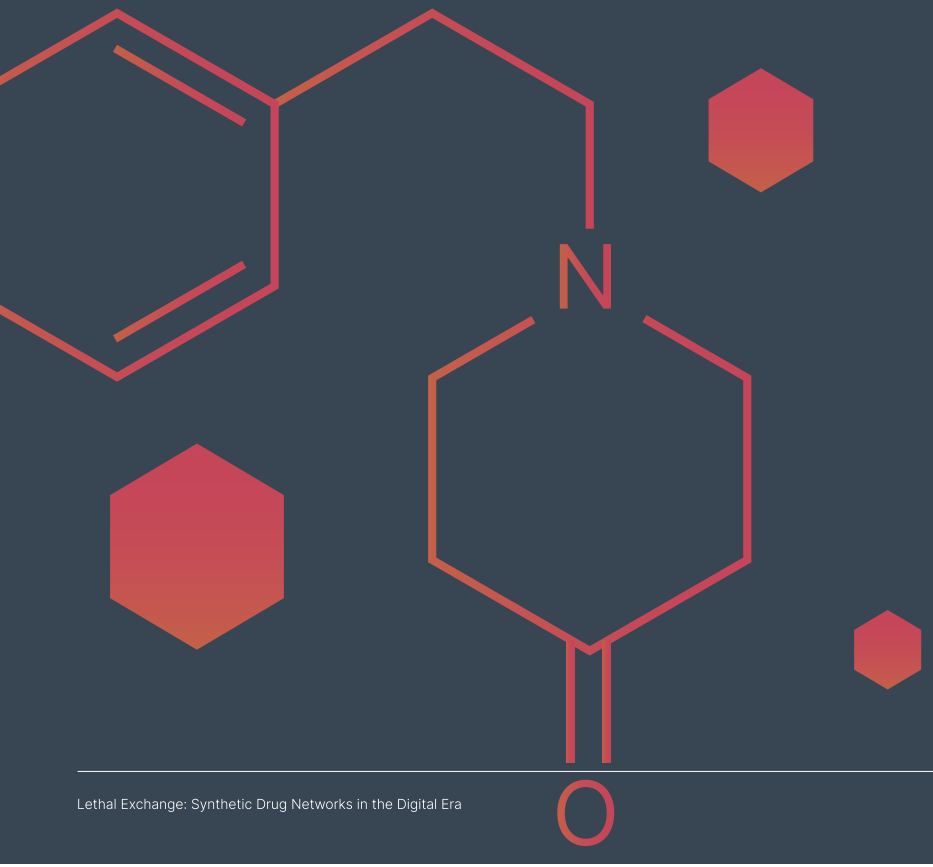
The reliability of the data we compiled on synthetic drug seizures and online sellers is dependent on and limited by a variety of factors.

Drug seizures, while important for estimating the scale of total drug flows, represent only a fraction of trafficking attempts, and do not necessarily reflect the main trends in drug supply chains. Moreover, drug seizures represent only those "unsuccessful" trafficking instances wherein a shipment fails to reach its intended end-user. Public reporting of drug seizures also tends to lack important contextual information, such as product origin and final destination, the results of laboratory tests to determine the specific analogue or type of substance seized and its purity, or the precise volume or quantity of drug seized. These limitations inhibit our ability to trace individual seizures to specific production networks or to fully understand the true scale of synthetic drug supply.

Separately, two distinct problems accompanied the collection of synthetic drug seller data. First, an ever-changing global legal regime and growing attention placed on fentanyl resulted in many websites and advertisements being removed, blocked, or altered during the course of our research, which distorted the picture we were able to paint of the global fentanyl trade.[9] Second, a number of obstacles made it difficult to prove the authenticity of data provided by company profiles or websites. For instance, synthetic drug supply chains rely on anonymous and/or encrypted communication channels and platforms, and many sellers use false or incomplete information. In cases where information, such as a factory address, appeared to be falsified, we conducted extensive investigations into the company's activities on both the clear and dark web, and potential corporate registration information, to find more reliable identifying information.

SECTION I

THE ORIGINS OF SYNTHETIC OPIOID SUPPLY



Since the turn of the millennium, opioid abuse in the United States has skyrocketed – the US Center for Disease Control and Prevention (CDC) estimates that between 1999 and 2018 nearly 450,000 people died from an opioid overdose.[10] In 2018 alone, opioids were involved in approximately 47,000 overdose deaths – nearly six times the number of deaths in 1999.[11] Of these deaths in 2018, over 31,000 (67%) involved synthetic opioids.[12] These changes – the increasing lethality of opioids and the emergence of synthetic opioids – took place as part of three distinct waves of opioid use in the United States.[13]

The first wave of the opioid epidemic began in the late 1990s with the over-prescription of opioid pain relievers, which pharmaceutical companies assured the medical community were non-addictive.[14,15] Contrary to these initial claims, however, opioids can be addictive,[16] and their widespread over-prescription corresponded with increased levels of drug misuse and dependence.

A second wave began in 2010, when many users, now addicted but unable to obtain renewed doctor prescriptions, turned to alternative substances. This included heroin, the use of which led to rapid increases in overdose deaths.[17]

The third (and current) wave of the opioid epidemic began in 2013. This wave is characterized by "significant increases in overdose deaths involving synthetic opioids, particularly those involving illicitly manufactured fentanyl."[18] The advantage of fentanyl, from the perspective of a producer or supplier of black-market narcotics, is that it can be made in a laboratory relatively cheaply.[19] Its extreme potency also means it can be diluted with other substances, or "cutting agents," to create more product, thereby increasing profits.[20] As a result, suppliers began mixing fentanyl, a synthetic opioid 50 to 100 times more potent than morphine,[21] with heroin and other illicit substances, as well as pressing it into counterfeit pills to mimic the look of mainstream prescription painkillers.[22] The unfortunate consequence of this is that many users, who are not necessarily demanding fentanyl, are unaware that it is in their drugs, and subsequently overdose.

The three waves of the US opioid crisis have presented distinct challenges compared to past drug epidemics. For one, it has affected the US population across a broad demographic and socioeconomic spectrum, as compared to the crack cocaine epidemic in the 1980s or the methamphetamine crisis of the 1990s.[23] **It has also seen innovations in how drug supply chains operate, with technology and the internet increasingly serving as a means for buyers and sellers to connect. Furthermore, since agricultural inputs are not needed for synthetic drug production – in contrast to heroin, which is made from poppy plants – manufacture can occur wherever the appropriate lab equipment and chemical ingredients exist.**

Overall, increased global trade and internet connectivity has disrupted traditional drug supply networks, reducing barriers to entry and linking buyers and sellers. This, in turn, has created new challenges for understanding and countering the international networks supplying illicit synthetic drugs.

DRUG SCHEDULING & FENTALOGUES

Chinese synthetic drug trafficking networks are responsive to shifts in the regulatory framework governing chemical substances, which are controlled and catalogued under a number of different conventions at both the national and international level.

Drug scheduling refers to the practice of classifying drugs, substances, and certain chemicals used to make controlled drugs (precursor chemicals) based on their medical utility and potential for abuse or dependency.[24] The US Drug Enforcement Administration (DEA), for instance, classifies drugs into five schedules. Schedule I drugs "have no accepted medical use" and "a high potential for abuse," whereas Schedule V drugs "represent the least potential for abuse."[25, 26]

"Fentanyl" itself is perhaps best understood as an umbrella term for numerous forms of fentanyl that differ slightly in chemical formula. The DEA lists the majority of fentanyl variations as Schedule I drugs, though a number are Schedule II substances (alfentanil, carfentanil, remifentanil, sufentanil, thiafentanil, fentanyl, and norfentanyl), meaning there are accepted medical applications for those drugs but also a high potential for abuse.[27] Any substances "scheduled" by the DEA cannot be sold in the United States without proper accreditation.[28]

Similarly, multiple forms of the precursor chemicals required to produce fentanyl also exist. The two main fentanyl precursors are NPP and 4-ANPP, but structurally-analogous forms of these chemicals may also be used in fentanyl synthesis.[29, 30] Importantly, some of these alternative precursor chemicals remained uncontrolled in the United States and China, even after the Chinese government announced a ban against all "fentanyl-like substances" in May 2019.[31, 32, 33]

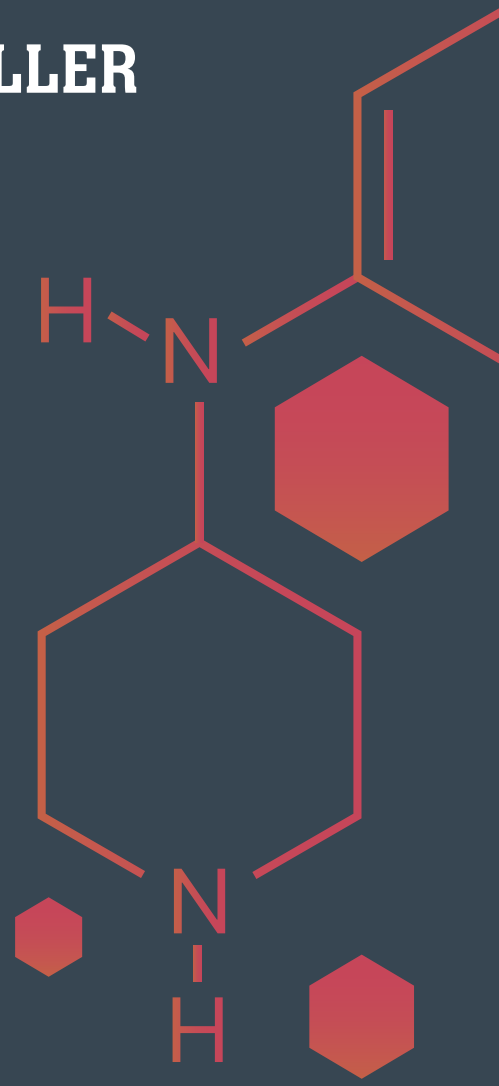
In addition to drug scheduling, the technical nomenclature for categorizing chemicals has directly influenced the advertising of illicit synthetic drugs. The **Chemical Abstract Services (CAS)**[34] and **International Union of Pure and Applied Chemistry (IUPAC)**[35] provide two standardizations for chemical identification. A CAS number is a unique numerical code that refers to one specific chemical product. For instance, a common form of illicit fentanyl, fentanyl hydrochloride, has CAS number 437-38-7.[36] An IUPAC name, however, is the technical terminology for a specific compound's chemical composition. Fentanyl hydrochloride has the IUPAC name "N-phenyl-N-[1-(2-phenylethyl)piperidin-4-yl] propanamide;hydrochloride."[37] Online synthetic drug sellers use the complexity and abstract nature of these chemical categorizations to their advantage, often advertising drugs by these identifiers alone as a means of evading scrutiny and detection.

SECTION II

PRODUCER & SELLER TYPOLOGIES

To meet burgeoning US and global demand for opioids, producers of fentanyl and other synthetic drugs have consistently modified their operations to evade investigation and prosecution. Whether by altering chemical production or online sales techniques, we found that players in the global market for illicit fentanyl were quick to adapt to shifts in international and domestic chemical controls. The influence of legal changes on synthetic drug supply is perhaps best illustrated by the Chinese government's decision to institute a ban on all "fentanyl-like substances" in May 2019.[38] This led to a noticeable shift in the types of chemicals that were overtly advertised on the internet and how such products were marketed, with uncontrolled substances in particular becoming more prevalent.

Distinguishing drug producers from suppliers, and identifying companies engaged in illicit drug synthesis, is a persistent challenge due to the use of misleading or incomplete identifying information. We identified many online sellers that claimed to produce their own substances and were often able to link these entities to legitimately registered businesses in China's corporate registry system. One specific company, Gaosheng Biotechnology Co., Ltd., seemed to exemplify how many synthetic drug sellers systematically exploit the internet, and is further discussed below.

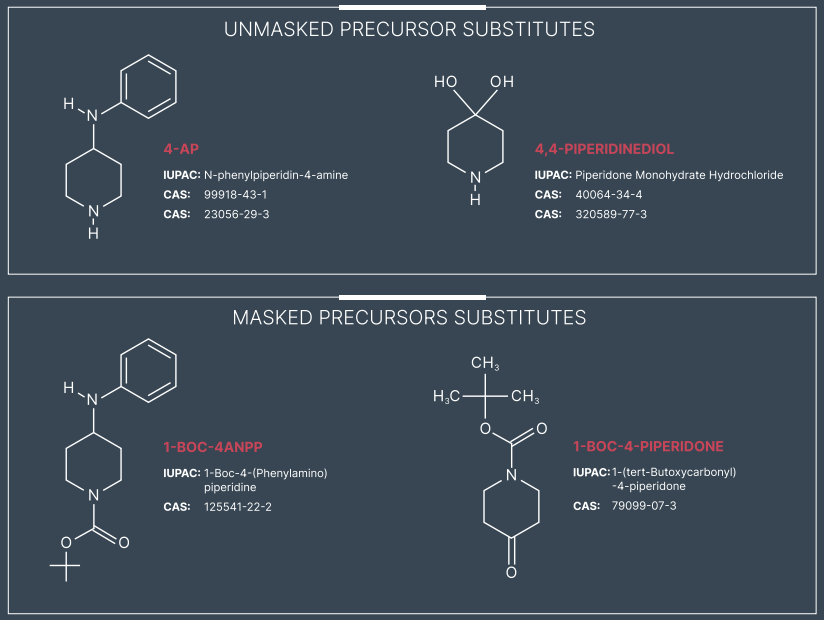


Fentanyl Synthesis & China's Ban

In April 2019, the Chinese government announced that, effective May 1, 2019, it would control all fentanyl analogues in the country.[39] The decision, in part, was due to US pressure on China to increase oversight of fentanyl production and curb exports of the drug to the United States.[40] Instead of halting the production of fentanyl, however, China's ban led to a shift in advertising and production techniques designed to exploit loopholes in the new chemical controls.

Importantly, while China's May 2019 ban made all forms of fentanyl illegal, it did not schedule all precursor chemicals used to make fentanyl.[41] Prior to the ban, China had already scheduled the two main fentanyl precursors: NPP and 4-ANPP.[42] After May 2019, marketing for at least four fentanyl precursor substitutes for NPP and 4-ANPP became increasingly common on the clear web. All four of these substances were uncontrolled in both the United States and China at the time.[43] These substitutes included "masked" precursors, or chemicals that are designed to disguise their relation to a scheduled substance, but from which scheduled precursors can be easily obtained. [44, 45]

Figure 1: Four fentanyl precursor substitutes that became increasingly advertised after May 2019.



For instance, in September 2019, months after China's fentanyl ban took effect, searching Alibaba for "99918-43-1," the CAS number for the fentanyl precursor 4-AP, yielded over 100 different sales listings from 29 different companies (for an example, see Figure 2). The companies posting these advertisements often claimed to synthesize the chemicals themselves.

Figure 2: An example advertisement f the fentanyl precursor 4-AP on Alibaba. Source: Alibaba.com

This transition by Chinese chemical companies to marketing uncontrolled fentanyl precursors is indicative of the creative modifications possible for producing illicit synthetic opioids that, though chemically "different," can be used to synthesize fentanyl. Such adaptations are facilitated by the fact that many illicit synthetic opioid manufacturers offer a diverse array of chemicals or drugs, including legal products. This variety not only allows manufacturers to shift from illegal to legal chemical production quickly in order to circumvent controls, but also offers opportunities to hide illicit chemical production. This last point highlights one of the challenges in identifying actual companies and facilities involved in the production of illicit synthetic drugs.

Chinese Chemical Labs

Conclusively identifying Chinese facilities where fentanyl and other substances are produced is difficult absent an analysis of chemicals leaving a known laboratory. Nonetheless, clear web advertisements offer useful information when searching for physical locations where fentanyl production occurs.

To conduct a more systematic analysis of companies potentially involved in the manufacturing of fentanyl and synthetic drugs, and to understand the geographic distribution of illegal drug production in China, we developed the Synthetic Drug Supplier Database. This dataset contains attributable information for producers obtained from the clear web and, when possible, the Chinese corporate registry. In total, the database consists of 103 different Chinese entities that advertised synthetic drugs on a variety of websites.

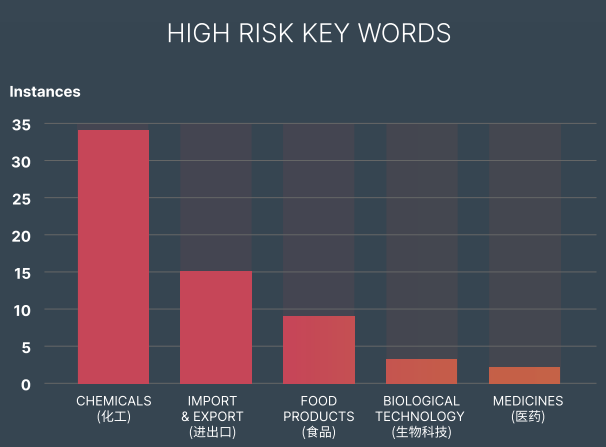
We uncovered several related trends when we analyzed the Synthetic Drug Supplier Database.

First, of the 103 entities examined, over 50% advertised fentanyl along with other synthetic drugs – the most common being synthetic cannabinoids, synthetic cathinones, methamphetamines, and novel dissociatives with effects similar to ketamine. This suggests that most fentanyl suppliers have diversified product offerings.

Second, 65% of the suppliers analyzed have filings in the mainland China and/or Hong Kong corporate registries.[46] Many of these companies have links to larger corporate networks in China. In many of the identified instances, it appeared that companies affiliated with multiple entities used these linkages to obfuscate ownership through a complicated hierarchy of layered corporations.

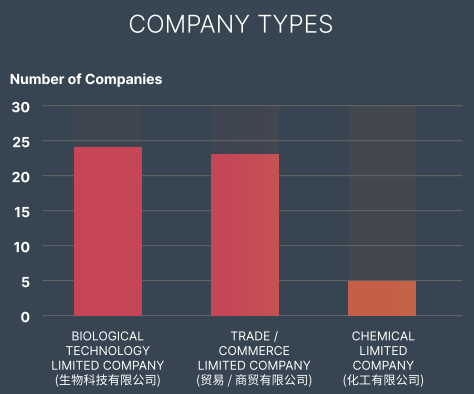
Chinese corporate registry documents also reveal how illicit synthetic chemical suppliers describe their own business operations. All companies registered in mainland China must include a description of their legal scope of business (经营范围). For companies in the Synthetic Drug Supplier Database, the following keywords were particularly common in scope of business descriptions and may be indicators of high-risk activity:

Figure 3: Keywords common in scope of business descriptions for companies in the Synthetic Drug Supplier Database.



Company naming conventions also offer insight into how illicit synthetic drug suppliers may operate. Chinese business names are generally structured to include an operating location (e.g. Shanghai), industry (e.g. management consulting), and corporation type (e.g. limited partnership). A company's industry and corporation type are typically included at the end of their full business name.[47] Of the registered companies included in the Synthetic Drug Supplier Database, the three company "types," or name endings, seen in Figure 4 were most prominent.

Figure 4: The three most prominent name endings for companies in the Synthetic Drug Supplier Database.



"Biological technology" companies are not only prevalent within our Synthetic Drug Supplier Database, they are also a relatively common "type" of company within the Chinese pharmaceutical and chemicals industries, with more "biological technology" companies than any of the other name endings listed in Figure 4.[48]

The Synthetic Drug Supplier Database also includes 51 companies that provide information on their registered capital (注册资本).[49] A majority (40) listed their registered capital as one of the four amounts seen in Figure 5.

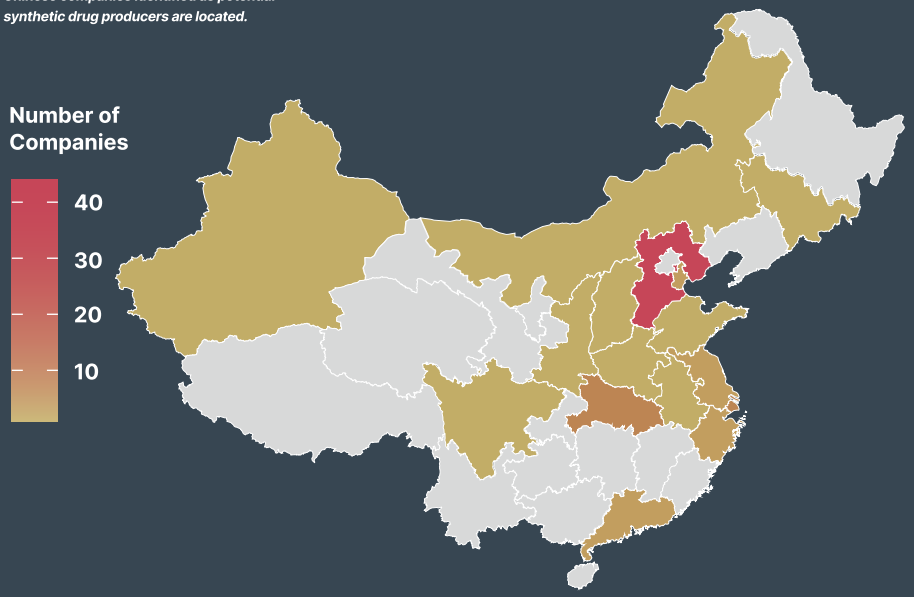
Figure 5: The four most common registered capital amounts for companies in the Synthetic Drug Supplier Database.

Registered capital values for companies in our Synthetic Drug Supplier Database are within the average for similar types of companies within mainland China.[50]

Together, the prevalence of common naming conventions and registered capital amounts among Chinese companies highlights one of the challenges in identifying illicit chemical suppliers in China: they are often legitimately registered and relatively indistinguishable from licitly operating chemical and pharmaceutical companies.

Lastly, the Synthetic Drug Supplier Database identified modest patterns in the geographic distribution of Chinese synthetic drug producers. A heatmap of 89 companies that had available location data is shown in Figure 6:

Figure 6: A heatmap of the provinces where Chinese companies identified as potential synthetic drug producers are located.



The city of Shijiazhuang in Hebei Province is home to 36% (32) of all producers included in the database. The next two most represented cities are Shanghai (10) and Wuhan (8). Interestingly, the listed location of companies in the Synthetic Drug Supplier Database does not correlate with the geographic distribution of registered Chinese biological technology, trade/commerce, chemical, and pharmaceutical companies.[51] That is, alleged Chinese producers of illicit synthetic drugs tend not to be located in regions with a known concentration of pharmaceutical and chemical companies.[52]

Online Advertising

The companies included in the Synthetic Drug Supplier Database were originally identified through online advertisements. One of these companies in particular provides unprecedented insights into how Chinese illicit drug manufacturers seem to maintain their online operations and conduct transactions.

While searching through online synthetic drug advertisements, we found advertisements seemingly for the company "Gaosheng Biotechnology Co., Ltd., (高盛生物科技有限公司)." These advertisements offered an array of drugs for sale, such as: synthetic cannabinoids and cathinones; Etizolam[53]; "2FDCK" (2-fluorodesochloroketamine, a ketamine analogue); "A-PVP" (α-Pyrrolidinopentiophenone, also known as "flakka" or "bath salts"); and, furanylfentanyl, a popular fentalogue.[54]

Gaosheng Biotech has a history of activity on a number of online marketplaces, trade platforms, and social media websites. The company's apparent pages on these websites not only offered insights into the company's online sales activity, but also contained valuable identifying information, including physical addresses and unique domain names. Using this information, we identified a LinkedIn profile likely associated with a Gaosheng Biotech sales representative.

Most interestingly, this LinkedIn profile had a link to a 27-page document that appears to be a resource for company representatives to maintain profiles on various online platforms. For instance, the document includes large bodies of standardized text to use when making new profiles, including the following text:[55]

> *Attach our best-selling lines and in stock products for your reference, And the purity is above 99%,the price will be very competitive .*
>
> *Meanwhile I advice you can see our samples (free shipping) ,I think you will be satisfied with them.*
>
> *Best-selling products : BK-2C-B ��crystal) 2-NMC(powder and crystal) 4- CEC(crystal) FUB-AMB TH-PVP 4mpd NM-2201 MMBC 5-methylethylone BK-EBDP U-47700*
>
> *AMB-FUBICANA ADB-FUBINACA 5F-PCN BK-EBDP(crystal) AB-Chminaca 2- NMC(crystal or powder) 4-CPRC (crystal or powder) 4-EMC 4F-PHP 4F- PV8(crystal) 4C-PVP*
>
> *5F-PV8(crystal) 5f-mn-24 5FSDB005 5FNPB22 FAB-144 EG-018 MDPHP 4-CL-PVP*
>
> *ADRAFINIL(crystal or powder) DOC25 ��white powder) Dibutylone(crystal) THJ- 018 5FSDB005 5FNPB22 FUBPB22 ADRAFINIL(Powder and crystal)*
>
> *Waitting for your early reply!*
>
> *Thanks & Regards*
>
> *Kathy*

This document provides several important clues about synthetic drug operations. First, according to the document, shipping takes three to five days, with products able to be sent in "aluminum alloy" bags to the United States, Canada, and Europe. The mention of aluminum alloy bags is presumably intended to assure customers their drugs will be harder to detect by X-ray machines, despite little evidence to suggest this is an effective smuggling tactic.

Second, over 100 websites are listed in this document – including Facebook, Twitter, Reddit, and Drugs-forum.com – along with e-mail addresses and passwords, which are likely used to create accounts on these websites.

Third, the document also provides text that may be intended for use in company descriptions on new webpages. In the course of our research, we observed multiple instances where sellers appeared to have used copied and pasted text across multiple websites and profiles, similar to the following:[56]

> *Gaosheng Biotechnology Co., Ltd. is a production and sales LLC (wholly state-owned), specialized in producing and exporting Pharmaceutical Intermediates which located in Shanghai, China. We own six subsidiary and we enjoy tax exemption privileges.*
>
> *As an ISO 9001:2000 certified manufacturer, we have been awarded the title of "Good Faith Enterprise" by customers for good quality and reasonable price.*
>
> *1.we have rich experience in this area.*
>
> *2.The products we provide are high in quality and our best selling lines in the world market.*
>
> *3.We supply competitive price with top purity ,quality.*
>
> *4.We have a long business relationship with many countries,such as Unites States. Mexico, UnitedKingdom, Russia, Germany, Brazil, Philippines, Belgium, Netherlands, Denmark ect.*
>
> *If you have any other questions,pls do not hesitate to contact me.My Skype: kathy0229@outlook.com*
> *email: winter@cn-gaosheng.com*

Overall, the information uncovered for Gaosheng Biotech is emblematic of broader trends and patterns of behavior we observed when analyzing potential synthetic drug producers. Many of the companies we examined appeared to exhibit similar characteristics, suggesting illicit drug suppliers use common operational approaches and techniques to sell a diverse array of products. The ability of Chinese companies to supply international demand for illicit synthetic opioids, however, is largely due to increasing global interconnectivity, with the internet playing a key role in establishing networks of buyers and sellers.

Gaosheng Biotech's Finances

The document connected with Gaosheng Biotech's LinkedIn profile also contained financial information, including a credit card number, Bitcoin address, MoneyGram account, and bank account information, including the beneficiary's account number and name. Historical transaction information for drugs sold by Gaosheng Biotech, including names of buyers, e-mails, physical addresses, and phone numbers of buyers, were also included. Many of these transactions had parcel tracking numbers.

This data alone does not definitively prove that Gaosheng Biotech produces and exports illicit drugs. The financial information does, however, allow further analysis of the company's monetary transactions and shipment history – which may be indicative of broader financial trends and typologies for Chinese manufacturing of illicit synthetic drugs.

For instance, a Bitcoin address (13itGxzHdRYSFBcj7H15ns4f8p4B6krDuQ, "13it") is also included in the document associated with Gaosheng Biotech. According to the public blockchain, 13it recorded 71 total transactions between March 2016 and June 2017, including 36 received and 35 sent transactions. The 71 total transactions involved the inward and outward movement of 41.4 bitcoins – a total worth of roughly $75,000 given bitcoin values during this time.[57]

Figure 7 represents two financial transactions associated with 13it, as analyzed in CipherTrace, a cryptocurrency analysis tool. On the left, one address sent 0.33 bitcoin to 13it on March 14, 2017. 13it, seen as one circle within the middle column, then sent 0.33 bitcoin to another address, which is owned by BTCC,[58] a Chinese-based cryptocurrency exchange. This 0.33 bitcoin was included in a single transaction that bundled bitcoin from 35 other BTCC-affiliated addresses, totaling 2.51615 bitcoin.

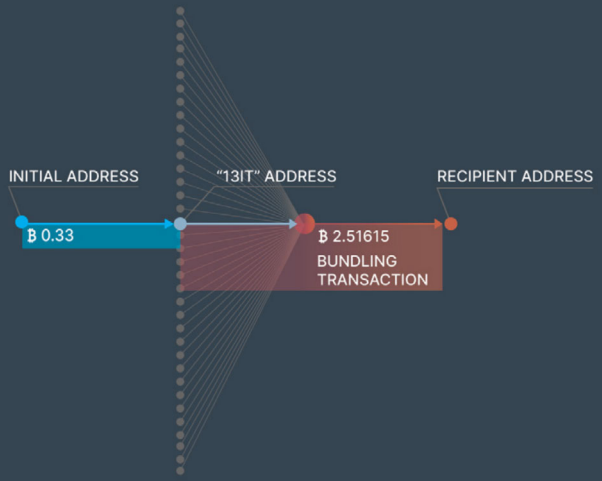


Figure 7: A visualization of two cryptocurrency exchanges involving Gaosheng Biotechnology. Source: ciphertrace.com

Further analysis using CipherTrace revealed 13it is owned by BTCCPool, a now-defunct mining pool run by BTCC. When an address is owned by an exchange, it is common for the address to be generated by the exchange as a receiving address for one individual. That is, 13it is likely an address unique to one account holder, Gaosheng Biotech. Therefore, the incoming transactions into 13it were likely sent to the address with the intention of transferring money to Gaosheng Biotech.

However, because 13it is owned by the BTCC exchange, any analysis on outgoing transactions is difficult. It is generally difficult to differentiate between outflowing bitcoin movements initiated by the account holder and those initiated by the exchange itself. For example, the 13it account holder could immediately convert incoming bitcoins into fiat currency because the address is owned by an exchange; no additional steps within the blockchain are required for conversion. Gaosheng Biotech could also personally transfer the bitcoin to a subsequent address, which may be owned by an ultimate beneficiary. In the case of 13it, the majority of outgoing transactions (31 of 35) were sent to a single, BTCC-owned address, which could indicate the address is controlled by an end beneficiary.

But, outgoing transactions may also be associated with the exchange's own movements (e.g. moving bitcoin to exchange-owned hot wallets, taking bitcoin for another account holder's conversion from fiat currency). In other words, analysis on bitcoin outflow cannot be definitively linked to intentional choices on the part of an address's unique account holder when the address is owned by an exchange.

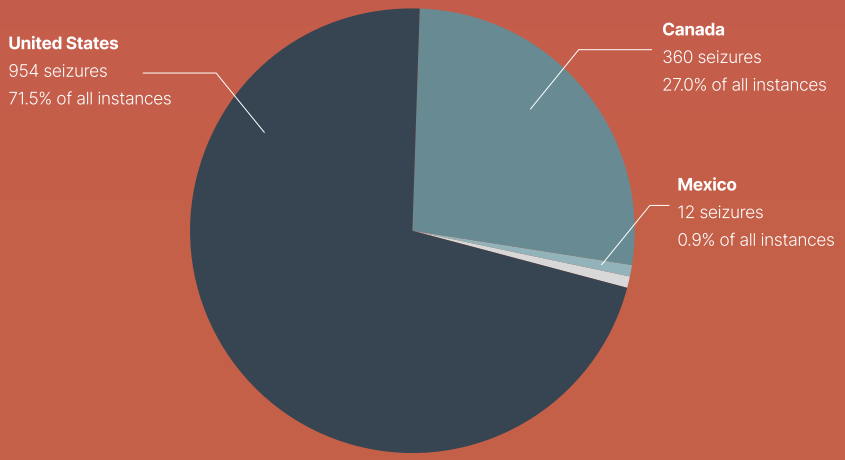
Gaosheng Biotech's bitcoin address transactions highlight the difficulty in conducting comprehensive analysis on the financial flows of synthetic drug sales; determining an end beneficiary is often difficult.

DETERMINING FENTANYL'S ORIGIN

The international community believes that most fentanyl trafficking originates in China, although the Chinese government denies this.[59] Such denials are inherently difficult to disprove for a variety of reasons. For instance, seizure data, one of the most tangible pieces of evidence in determining the point-of-origin for an illicit substance, is often incomplete or presents only a limited view of drug supply chains. Despite these limitations, seizure data still provides an opportunity to uncover and understand fentanyl trafficking trends.

Rising synthetic opioid usage has been accompanied by increased fentanyl seizures by US law enforcement. In fiscal year 2019, US Customs and Border Protection (CBP) reported seizing 2,545 pounds of fentanyl.[60] Only five years prior, CBP had no reported fentanyl seizures.[61] Similarly, the US Drug Enforcement Administration (DEA), in its 2019 National Drug Threat Assessment (NDTA), also noted that "fentanyl availability was high and increasing across the majority of the United States in 2018," adding that it is "the primary driver behind the ongoing opioid crisis, with fentanyl involved in more deaths than any other illicit drug."[62]

To gain a more nuanced view of seizure trends, we collected information on known fentanyl and synthetic drug seizures between January 2017 and July 2019. This Synthetic Drug Seizure Database contains information on 4,621 seizures, including 1,333 fentanyl seizures, nearly all of which (1,326, or 99.5%) occurred in North America.[63]



The number of seizure instances and total weight of fentanyl seized per state are represented in Figure 8 and Figure 9, respectively.

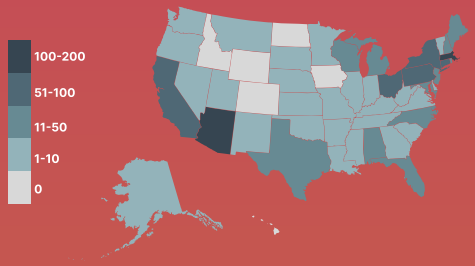


Figure 8: Number of fentanyl seizures per US state between January 2017 and July 2019.

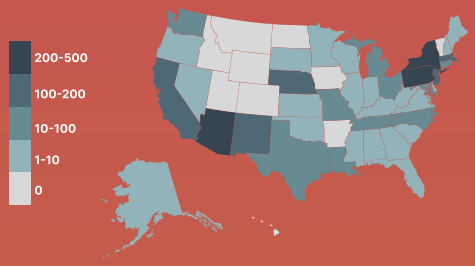


Figure 9: Weight (kg) of fentanyl seized per US state between January 2017 and July 2019.

Our Synthetic Drug Seizure Database includes, when available, information on known points of origin, transit, and destination. For the 18-month period when seizures were recorded, 133 fentanyl seizures had a non-US origin, with Mexico (98 seizures) and China (26 seizures) the most commonly reported origin countries.[64] Additionally, almost 9% of all fentanyl seizures occurred in states along the US Southwest Border (SWB). Ports of entry in California were the main transit point for fentanyl entering the United States from Mexico.[65]

This data largely corresponds with the DEA's 2019 NDTA, which states that Mexico and China are the primary suppliers of fentanyl seized in the United States. Yet, as the DEA notes, "it is currently not possible to identify whether China or Mexico is the primary fentanyl supplier to the United States."[66] This is largely a result of differences in purity levels. That is, while fentanyl trafficked from Mexico represents "a significantly larger total gross weight of fentanyl seized in the United States compared to fentanyl originating in China," it typically tests at less than 10% pure.[67] This low purity means "a relatively small portion of a given fentanyl seizure [from Mexico] is actually fentanyl as opposed to other adulterants and diluents." Fentanyl shipped directly from China is typically seized in smaller quantities but commonly tests at purities over 90%.[68]

This suggests, and DEA reporting corroborates, that Mexican traffickers order finished fentanyl from China, dilute it, and smuggle it into the United States -- meaning an unknown quantity of Mexican-sourced fentanyl may have been originally synthesized in China.[69]

SECTION III

WHERE PRODUCTION MEETS DEMAND

Evolutions in digital communication platforms have altered the methods that recreational drug users rely on to find and buy controlled substances. Some users of synthetic opioids, for instance, unable to obtain painkillers from pharmacies or reluctant to engage in face-to-face transactions with illicit drug suppliers, use the internet to buy directly from drug producers. A myriad of encrypted messaging and payment tools, such as Wickr, WhatsApp, or Bitcoin, facilitate these online transactions, offering a layer of anonymization and protection for sensitive or illegal activity.

The marketing and selling of illicit fentanyl, however, rather than being secluded to the dark corners of the web, often occurs on the normal, open internet, or clear web. Interactions between buyers and sellers happen on a variety of clear web platforms, but are concentrated on e-commerce websites (e.g. Alibaba.com), online chemical marketplaces (e.g. ECHEMI.com), and social media.[70] Illicit synthetic drug sellers often use marketing techniques that appear intended to avoid law enforcement scrutiny and obfuscate their true activities, such as the use of a chemical's technical name to advertise controlled substances.

Additionally, many online synthetic drug sellers operate across multiple public platforms and maintain independent websites. Synthetic opioid sellers appear to use this collection of websites to cultivate a client base and ultimately direct traffic to a seller's own site to carry out transactions. Social media, particularly Facebook, has had an important role in creating these trusted networks of vendors and buyers.

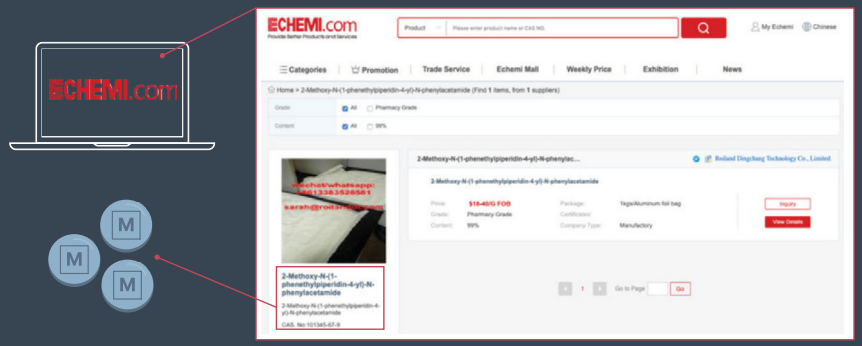
Clear Web Sales Platforms & Advertising Tactics

Illicit drug vendors operating on clear web platforms have used a variety of techniques to obfuscate their activities. For instance, one commonly used tactic is to market fentanyl and other drugs as "research chemicals,"[71] a label ascribed to synthetic substances that are relatively obscure but may have similar effects to controlled drugs. Similarly, some chemical companies advertise "custom synthesis," whereby clients can request substances not included on a list of available products. This may include illicit or controlled substances.

Rather than risk detection by openly using the word "fentanyl," drug sellers advertising on the open web often use chemical nomenclature associated with the Chemical Abstract Services (CAS)[72] and International Union of Pure and Applied Chemistry (IUPAC)[73] as a kind of euphemism. Given their complex format and obscurity, online drug vendors began using CAS numbers or IUPAC names in lieu of more recognizable terms to advertise synthetic drugs on the clear web, particularly as scrutiny of web platforms increased.

For example, Figure 10 is an advertisement for the fentanyl analogue "methoxyacetylfentanyl" on the chemical marketplace ECHEMI.com.

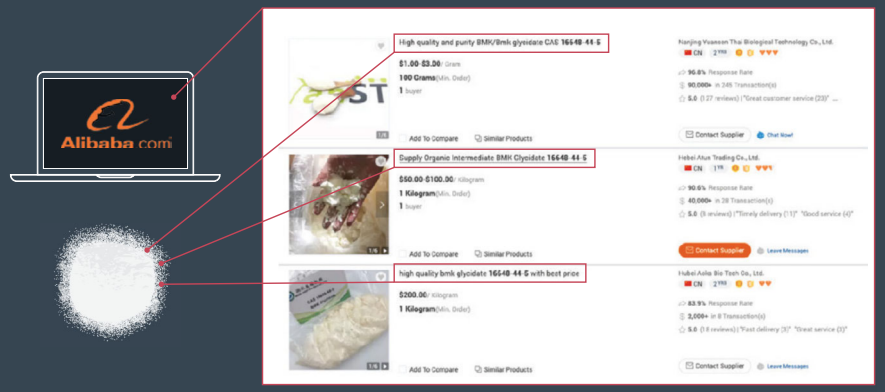
Figure 10: An advertisement for methoxyacetylfentanyl using only its CAS and IUPAC identifiers. Source: Echemi.com



The term "fentanyl" does not appear anywhere in the advertisement. Instead, only the IUPAC and CAS identifiers are used.

This clear web advertising tactic also appears in sales listings for other synthetic drugs. Figure 11 shows three advertisements on Alibaba for the methamphetamine precursor "Methyl 2-phenylacetoacetate" (MAPA), which the UNODC's Commission on Narcotic Drugs (CND) included on international controls in May 2020.[74] All three advertisements use the CAS number for this precursor: 16648-44-5.

Figure 11: Advertisements for the meth precursor Methyl 2-phenylacetoacetate on Alibaba. Source: Alibaba.com



In contrast to the fentanyl advertisement, however, these three advertisements use a known term for a methamphetamine precursor, "BMK Glycidate," providing a clearer indication of illicit activity. Benzyl methyl ketone (BMK), also known as phenylacetone (P2P), has been a DEA Schedule II controlled substance since 1980,[75] and is used to manufacture methamphetamines and amphetamines. The inclusion of the term BMK Glycidate, which has a different CAS number than MAPA but can act as a substitute for that chemical, suggests that suppliers may be signaling to potential buyers that CAS 16648-44-5 is an adequate precursor for methamphetamine synthesis.

After the Chinese government's May 2019 ban against all "fentanyl-like substances,"[76] the use of CAS numbers and IUPAC identifiers in online drug advertisements became more pronounced.

That a change in Chinese legislation had such a visible impact on online advertisements strongly suggests that many of these companies or producers have ties to China. This is supported by the fact that most apparent illicit drug sellers on these platforms self-identify as Chinese, and report a Chinese address. For example, Figures 10 and 11 contain four advertisements for illicit substances, all of which were posted by vendors that self-described their location as China. Similarly, the company name listed on the ECHEMI advertisement in Figure 10, Roiland Dingchang Technology Co., Limited, is registered in Hong Kong and is affiliated with a legitimately registered company in mainland China.

Independent Websites & The Supporting Role of Social Media

E-commerce websites and marketplaces are not the only clear web platforms synthetic drug sellers use to find customers and retail products. Many vendors also operate independent websites where they list available chemicals for sale, and use social media to help build a network of clients and direct traffic to their sites.

For instance, Huilitongda Biological Technology Company (HBTC) is a Chinese pharmaceutical company whose name has appeared in advertisements for fentanyl and other drugs online. We originally found an online profile for HBTC via a search for fentanyl analogues, which returned a Google Image result with a visible email address: "huilitongda.rc@gmail.com" (Figure 12)

Subsequent searches of this e-mail address showed it was linked to a number of fentanyl advertisements that provided further identifying information, including: company name, address, phone number(s), WhatsApp number, Telegram ID, and Wickr ID. These advertisements, an example of which is seen in Figure 13, also detailed the quantity, purity, and price of fentanyl and other synthetic drugs available for purchase.

Figure 12: The Google Image result for fentanyl analogue "Fu-F" that includes the email huilitongda.rc@gmail.com.

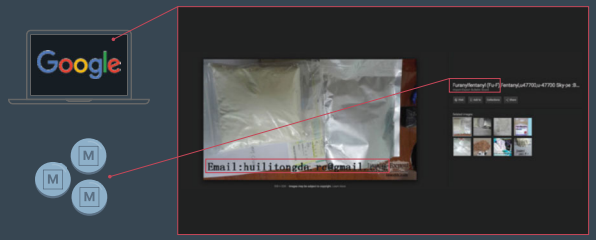
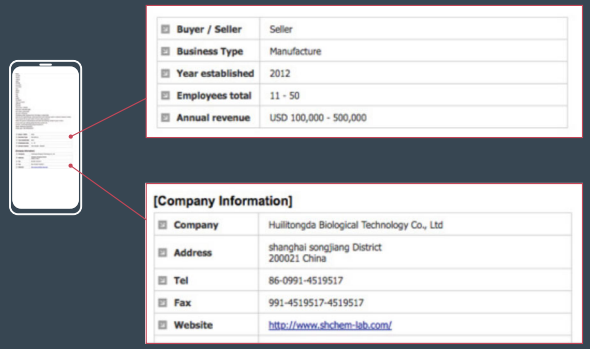


Figure 13: A fentanyl advertisement connected to the email huilitongda.rc@gmail.com.



Additionally, the listing seen in Figure 13 provides a URL, www.shchem-lab.com, as the website for HBTC. This site, which was still active as of October 2020, is a marketplace that has listed multiple forms of fentanyl for sale alongside images that appear to be stock photos (Figure 14).

The use of generic stock photos is a possible red flag that HBTC is not a genuine vendor. To help determine HBTC's legitimacy as a fentanyl supplier, we analyzed the company's social media presence.

Research into HBTC revealed information, including a phone number and Skype account, that led us to a HBTC Facebook page that listed "Benjamin Chen" as its administrator. This name matched an email address, Benjamin.chen2557@gmail.com, seen in other fentanyl advertisements posted by HBTC.

Analyzing Benjamin Chen's Facebook activity revealed he belonged to the private group "Research Chemicals Group for Trusted Buyers and Reliable Vendors." Facebook groups such as this serve as forums for sellers and buyers to connect with one another. In these groups, which tend to be private, products are advertised or reviewed, relevant drug laws are discussed, and buyers alert one another to potential seller scams (e.g. outing "sellers" who initiate a sale for a drug but never ship a product after receiving payment).

In November 2018, the aforementioned "Research Chemicals Group" had over 1,100 members interacting with one another, ostensibly to advertise, review, and buy synthetic drugs. An example of this, seen in Figure 15, includes product recommendations and Wickr IDs for direct communication with suppliers.

Figure 14: A view of products for sale on the website www.shchem-lab.com.

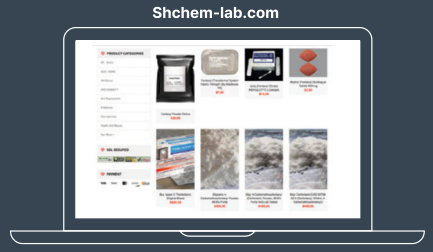
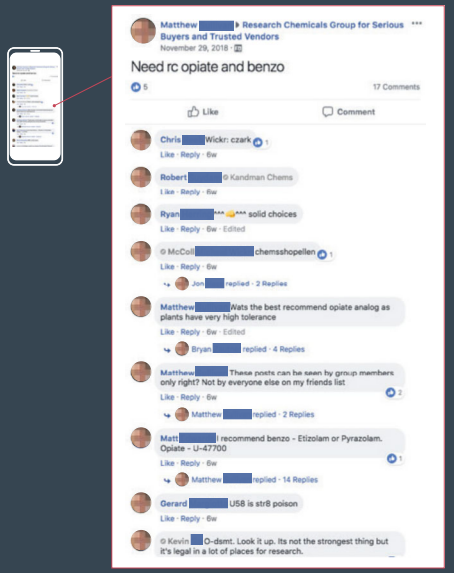
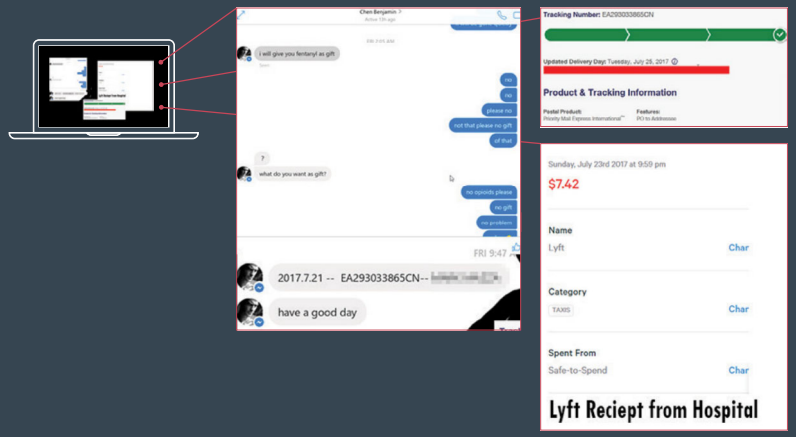


Figure 15: A conversation thread within the private Facebook group "Research Chemicals Group for Trusted Buyers and Reliable Vendors."



One particular post by the "Benjamin Chen" account in this Facebook group speaks to the immediacy and direct digital relationship between buyers and sellers of synthetic drugs on the clear web, as well as the real-world impacts fentanyl can have on users. Figure 16 is a compilation of screenshots posted by Chen's account in the group. One of the screenshots seems to show Chen offering fentanyl as a "gift" to a buyer who had overdosed on a previous shipment. Another screenshot includes a postal tracking identification number and proof of the shipment's delivery. Chen also included a receipt for a Lyft the individual allegedly took from the hospital after overdosing. This ride was paid for by Chen, supposedly as a demonstration of good faith and his reliability as a vendor.

Figure 16: An image posted by "Benjamin Chen" in a Facebook group for suspect substances. The included screenshots appear to show Chen offering fentanyl as a "gift" to a customer.



Further analysis of the "Research Chemicals Group" on Facebook indicated that Benjamin Chen is an actual Chinese individual named 陈以见 who is listed as HBTC's director on company incorporation documents. Moreover, it appears Chen has operated at least five different online profiles for companies whose actual existence could not be verified. The use of such "phantom companies" may be a strategy that illicit Chinese chemical suppliers use to shift their online activities to avoid legal risk.

At least another eight companies, all legally registered with the Chinese corporate registry, were affiliated with other profiles in this Facebook group, suggesting at least several Chinese synthetic drug vendors rely on Facebook to connect with customers and conduct sales. Regardless, it appears the use of Facebook by Chinese synthetic drug vendors to conduct sales was not limited to HBTC.

Ultimately, the HBTC example highlights how social media facilitates direct interactions between synthetic drug vendors and buyers, helping them to establish sales networks built on trust. In the future, increased web monitoring may prompt these networks to move their operations to more secure platforms in order to remain undetected.

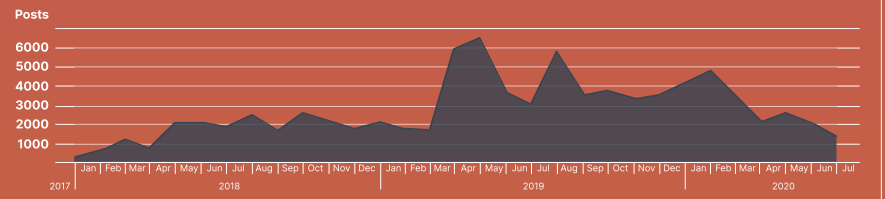
DARK WEB TRENDS

While our research indicates the clear web has been the primary avenue for online sales of illicit fentanyl and other synthetic drugs, the dark web offers an alternative, more discreet option for those engaging in nefarious conduct.[77]

In contrast to the clear web, the dark web is not indexed by search engines and can only be accessed via an anonymizing browser, such as Tor. Similar to the clear web, marketplaces and forums are the main platforms for advertising illicit products on the dark web. These sites, typically referred to as darknet marketplaces (DNMs), are where sellers post advertisements, often without disguising the illicit nature of products for sale.

To research synthetic drug sales on the dark web, we analyzed two years of web scrapes that contained over 216,000 posts from more than two dozen DNMs. Overall, we found that in recent years, the number of fentanyl-related postings on the dark web appears to have steadily risen. We also tracked frequent shifts in activity from recently-closed DNMs to live DNMs. DNM closures were sometimes a result of law enforcement action, but also frequently occurred due to "exit scams," in which vendors or marketplace administrators defraud buyers and abscond with funds held in escrow.[78] This speaks to the notorious unreliability of the dark web environment: though its lack of regulation is attractive to users, it also means that websites frequently go offline for varying periods of time or disappear entirely.

Figure 17: A timeline showing fentanyl-related activity across dark web marketplaces.



Postings for fentanyl in DNMs are rarely detailed enough to identify the specific individuals involved in a potential transaction. But these posts do typically include some form of contact information – such as a Wickr ID, email address, or WhatsApp number – that clients can use to directly communicate with sellers and finalize transactions.

Another primary identifier seen on DNMs is the "author," or username, associated with each post. These monikers are sometimes used across different DNMs, and occasionally appear as pseudonyms on the clear web. This suggests that certain fentanyl vendors active on DNMs also maintain a presence on the clear web, using websites such as Reddit or other messaging forums to communicate with the broader synthetic drugs community. Disparate dark web monikers can also sometimes be linked by cross-referencing identifying information to reveal, for instance, usage of the same email address or phone number – providing a sense of the scale and extent of a single vendor's operations.

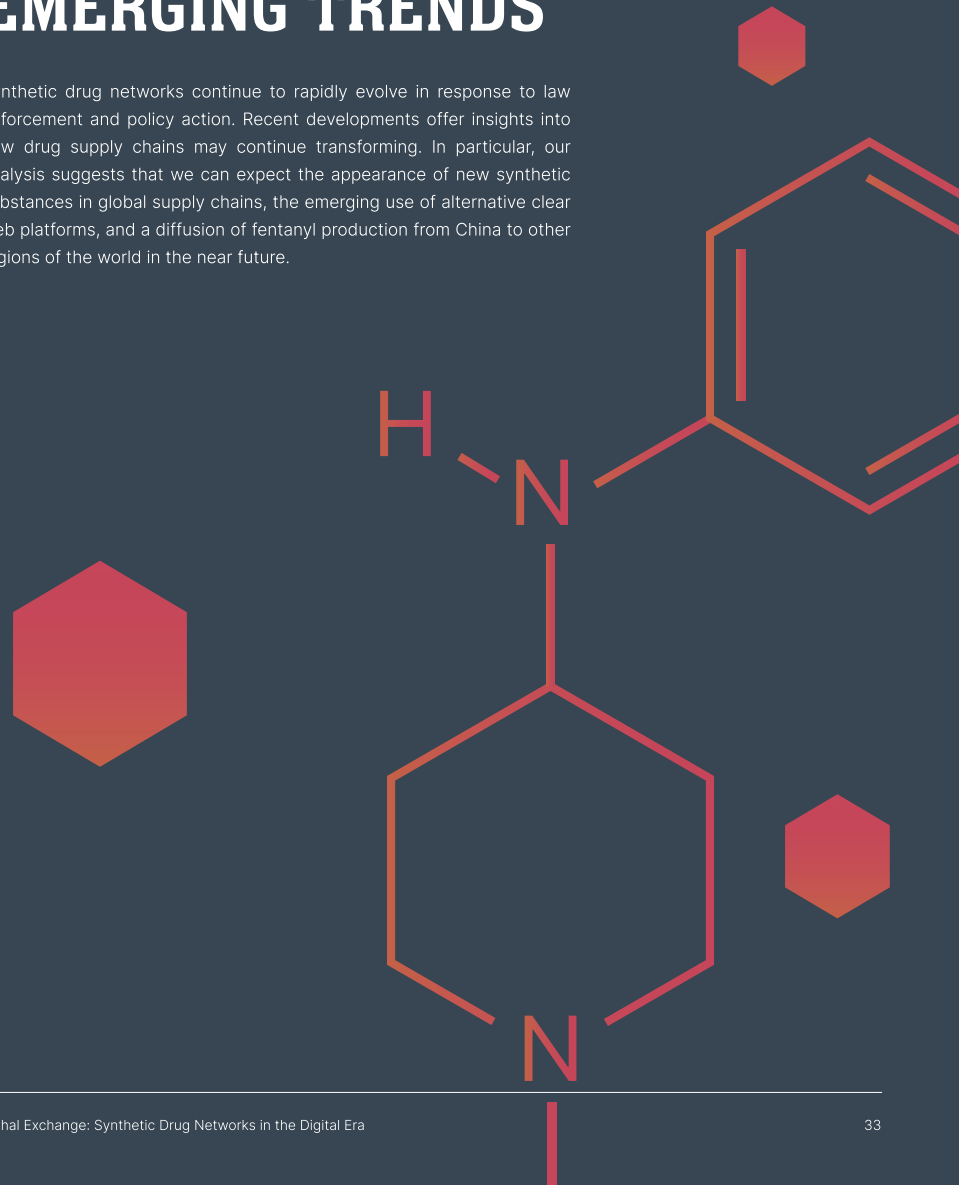
In a further contrast to the clear web, synthetic opioid vendors on DNMs appear to primarily be located in the United States,[79] and may be selling fentanyl or other drugs originally acquired from China via the clear web, though this usually cannot be definitively proved.

Ultimately, despite the dark web's general unpredictability and penchant for fraudulent activity, its encryption, anonymity, and higher barriers to entry continue to offer advantages for those willing to engage on a comparatively unregulated platform. As such, DNMs are likely to continue to play a role in the online sale of synthetic drugs, particularly if clear web regulations and monitoring become more rigorous

SECTION IV

EMERGING TRENDS

Synthetic drug networks continue to rapidly evolve in response to law enforcement and policy action. Recent developments offer insights into how drug supply chains may continue transforming. In particular, our analysis suggests that we can expect the appearance of new synthetic substances in global supply chains, the emerging use of alternative clear web platforms, and a diffusion of fentanyl production from China to other regions of the world in the near future.



Isotonitazene

The benzimidazole group of synthetic opioids, which are distinct from fentanyl but have similar effects, has emerged recently in international drug markets. The most prevalent benzimidazole has been isotonitazene, which is an opioid analgesic similar in potency to fentanyl. Though technically not a new substance – having been synthesized in the 1950s[80]– isotonitazene began appearing in global seizure data around April 2019,[81] and we noticed an increase in online advertising for isotonitazene in early 2020. According to the Center for Forensic Science Research and Education, it has ranked among the substances with the highest positivity rates in analysis of synthetic opioids in the United States during 2020.[82]

This spike in seizures and advertisements, however, has led to increased law enforcement scrutiny of isotonitazene. In August 2020, for instance, the DEA, noting a rise of isotonitazene in illicit drug markets, made it a Schedule I controlled substance.[83] The European Commission also initiated a process to ban isotonitazene in September 2020,[84] and the World Health Organization has been discussing placing the substance under international controls. [85]

Such heightened awareness may already be prompting a shift to more obscure, alternative substances. The synthetic opioid brorphine, for instance, has become increasingly prevalent in the United States in 2020.[86]

Password-Protected Marketplaces

In early 2020, many synthetic drug groups on public websites – including Discord, Facebook, Reddit, and others – began enforcing strict rules, likely to reduce exposure and detection by law enforcement. These rules often include restricting sourcing (e.g. not allowing members to post their location information or website referrals) as well as banning users that encourage private messaging.

To mitigate concerns of law enforcement monitoring, some illicit drug networks on the clear web have built password-protected websites for trusted individuals to securely and anonymously sell products. These websites depend on closed communities of drug buyers that migrate away from more commonly used clear web platforms. In early 2020, we gained access to three such websites and one Discord channel, including:

- Predator-rc.nl
- Therealrc.com
- Mu-story.website

All three of these websites require registration approval and offer analogues of controlled drugs, and in some cases, illicit opioids and other synthetic drugs. As of publication, at least one of these websites, therealrc.com, was still active.

Figure 18: The homepage of predator-rc.nl.

Figure 19: Products offered on Mu-story.website.

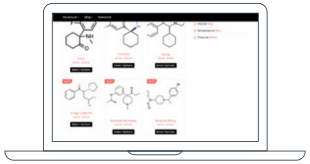


Figure 20: Novel synthetic opioids offered by TheRealRC.com.

These websites also offer insight into the emergence of novel synthetic opioids (NSOs) and other drug analogues, which are often introduced to these closed communities before becoming more mainstream. For example, on Mu-story.website, isotonitazene was offered as early as February 2020. Therealrc.com also has a section in its sales offerings specifically for NSOs, which includes products that are difficult to find anywhere else, such as metodesnitazene hydrochloride and acetoxymethylketobemidone (O-AMKD).

Mu-story.website also provided regular e-mail updates from its administrator, including information on which countries are currently receiving packages, as well as supply updates for new and old products.

Figure 21: Email from Mu-story.website discussing Fluorofuranylfentanyl and how the group must remain secret.

Figure 22: Email from Mu-story.website mentioning new opioids as well as a Telegram group.

Monitoring such websites is important for understanding how online drug markets shift in response to web monitoring and anticipating the use of new substances by recreational drug users. Yet many questions remain about networks operating on these private platforms. For example, it is still not clear who manufactures the drugs these websites offer, nor how suppliers actually ship products and bypass customs or inspection services. Understanding such nuances will be critical for countering the changing nature of synthetic drug supply chains moving forward.

COVID-19 & "Dropshipping"

Like many industries, synthetic drug supply chains appear to have been disrupted to some extent by the outbreak of COVID-19 in China. As COVID-19 began to spread abroad, the global supply for personal protective equipment (PPE), ventilators, respirators, and other vital medical supplies could not meet demand.[87] Networks previously engaged in illicit synthetic drug sales were quick to capitalize on this supply gap.

Similar to synthetic drug sales, clear web marketplaces and social media quickly became the primary venues for the sale of medical equipment. For instance, some Facebook groups, whose members represented companies in China, India, the Philippines, and the United Arab Emirates, had members offering up to 20 million masks for global export. Alibaba and IndiaMart also saw many companies advertising hydroxychloroquine and Remdesivir.[88]

The ease with which these companies modified their business operations may, in part, be linked to the practice of "dropshipping."[89] Often, companies that describe themselves as import/export or trading companies on online marketplaces are not the manufacturers of those goods. Rather, they are a brokerage company, or "dropshipper," that has no standing inventory but instead sources from another company to fulfill orders. This allows small, opaque trading companies to advertise and fulfill sales for a variety of disparate goods, and for the actual manufacturer of illicit or grey-area products to reduce their exposure.

By revealing the flexibility and versatility of alleged illicit synthetic drug vendors, the COVID-19 pandemic has highlighted the potentially key role of dropshipping in moving illicit products, such as fentanyl.

Emerging Production Hotspots

Efforts by the US and Chinese governments to curb Chinese synthetic drug production have raised concerns that illicit fentanyl synthesis may shift to other countries. Indeed, China may gradually play a diminishing role in global fentanyl supply chains as synthetic drug production becomes displaced or adopted by illicit networks in other regions of the world. Several countries and regions in particular are at high risk.

India

India, which has the third largest pharmaceutical industry in the world,[90] has the potential to offset any reductions in Chinese synthetic opioid production. Currently, India is the primary source of tramadol, a narcotic-like pain reliever, with the UNODC reporting that a majority of tramadol seized worldwide between 2017 and 2018 originated from India.[91, 92] An unclassified January 2020 intelligence report from the DEA also notes that India is emerging as a source for finished fentanyl powder and fentanyl precursor chemicals.[93] This trend, according to the DEA report, may accelerate if "China-based traffickers work with Indian nationals to circumvent China's new controls on fentanyl."[94]

There have already been several major public cases of fentanyl trafficking networks operating in India. For instance, in late 2018, India's Directorate of Revenue Intelligence arrested three individuals, including an Indian PhD chemist and a Mexican national, for illicitly manufacturing fentanyl hydrochloride and shipping it to Mexico.[95] Separately, in June 2019, the US Department of Justice indicted an Indian national for importing controlled substances into the United States, including tapentadol, tramadol, carisoprodol, and modafinil.[96]

Southeast Asia's Golden Triangle

Southeast Asia's Golden Triangle, consisting of parts of Myanmar, Laos, and Thailand, is already a major center for methamphetamine and heroin production.[97] Methamphetamine synthesis in particular has risen considerably in recent years, with the UNODC's 2019 annual report noting over 82 tons of methamphetamine were seized in the region in 2017 – the largest amount ever reported there. Available data for 2018 showed 116 tons seized, a 41% increase from 2017.[98]

Various transnational criminal organizations control the drug trade in the Golden Triangle, concentrating in Myanmar's conflict-prone border regions and operating in partnership with non-state armed actors, such as ethnic militias.[99, 100] The UNODC notes that these criminal organizations are becoming more deeply integrated into the region and have established a global reach.[101] In recent years, regional and international law enforcement officials have warned about the possibility of these criminal networks producing fentanyl and other synthetic opioids.[102] The UNODC representative for Southeast Asia and the Pacific, Jeremy Douglas, said that "given their sophistication ... we think it is only a matter of time [until] they do it." Golden Triangle drug syndicates, Douglas added, "are ruthless and the region has the conditions necessary for production and pre-existing market demand to capitalize on."[103]

Mexico

Mexico is already a major player as a transit country for illicit fentanyl shipments destined for the United States (see page 24), and may also play an increasing role in fentanyl synthesis.[104, 105] For instance, one notable June 2019 raid in Nuevo León led to the seizure of an industrial-scale fentanyl production operation in a warehouse.[106] A smaller seizure in July 2020 led to the arrest of two individuals running a pill press in Mexico City and the confiscation of 377,402 fentanyl pills, 36 kilograms of fentanyl, and nearly one kilogram of precursor chemicals.[107]

These seizures suggest a potential move by Mexico's sophisticated and opportunistic criminal structures, particularly the Sinaloa Cartel and Jalisco Cartel New Generation (CJNG), to control all portions of the fentanyl supply chain. Such networks are well-placed to move into wholesale fentanyl synthesis given pre-existing chemical expertise and ability to procure precursors for methamphetamine production.[108] The plummeting price of poppy[109], the central ingredient in heroin, suggests that Mexican drug trafficking organizations are increasingly moving away from heroin production and making fentanyl central to their business model.

CONCLUSION & RECOMMENDATIONS

Global illicit synthetic drug networks continue to evolve and adapt in order to supply a shifting drug market and circumvent increasing legal pressures and public scrutiny of their activities. Nonetheless, through the course of our investigations into illicit synthetic drug networks, we have arrived at several key takeaways and recommendations:

The primacy of the clear web:

Synthetic drug sellers and buyers rely on the clear web to connect and form trusted client networks based on a system of reviews and referrals. Interactions between buyers and sellers occur on a variety of platforms, including e-commerce websites, online marketplaces, and social media. Dark web marketplaces play a lesser but still important role in illicit drug sales, functioning as both a complement and an alternative to the clear web.

Recommendation: As scrutiny and regulation of more mainstream clear web platforms increases, attention and awareness should be given to the potential displacement of synthetic drug networks toward alternative, less visible platforms. One method for detecting such shifts is to monitor sudden drops in activity by previously known advertisers. This may be indicative of a migration to alternative platforms. Additionally, social media groups of identified drug vendors and buyers should be monitored for any mentions of movement to new or harder-to-access platforms.

Advertisements contain traceable identifying information:

Synthetic drug advertisements frequently contain unique identifiers, such as email addresses or phone numbers. This identifying information can often be traced in order to identify individuals or companies involved in the production and sale of illicit substances.

Recommendation: Investigators and researchers should use publicly available information, such as corporate records and trade data, to the highest degree possible. Email addresses, phone numbers, and other identifying selectors should be systematically collected alongside more traditional information during the course of investigations into synthetic drug networks. Such information can be used to better understand these networks and reveal links to previously unknown entities that play a role in facilitating supply chains for illicit substances.

Use of chemical nomenclature to avoid detection:

Chinese sellers of illicit synthetic drugs increasingly use chemical nomenclature in advertisements rather than recognizable drug names. This technique appears to be intended to help vendors avoid unwanted scrutiny and bypass web filters that search for and censor advertisements that use more well-known drug names.

Recommendation: To monitor illicit activity, online marketplaces, e-commerce websites, and social media platforms should maintain a regularly updated list of drug-related keywords, such as CAS and IUPAC identifiers. This will require staying informed on trends in synthetic drug use and being aware of any emerging novel substances. To that end, the International Narcotics Control Board publishes a list of fentanyl-related substances with no known legitimate uses.[110] This list contains known names and identifiers for those substances, which could be used to create screening lists of high-risk terms for online marketplaces.

Rapid evolution of novel synthetic opioids (NSOs):

Identifying new substances and recognizing when they begin appearing in supply chains for illicit drugs can be difficult and time consuming. As a result, global regulations and law enforcement will always be a step or two behind drug producers, who are able to create new substances quickly and easily.

Recommendation: Governments and international organizations need to react quickly to innovations in chemical synthesis and the appearance of NSOs. Monitoring closed groups, such as password protected websites, where some NSOs seem to first appear for sale, may help regulators to anticipate the emergence of new substances in global drug supply chains. Additionally, issuing generic drug controls that are designed to target a class of drugs, rather than a single substance, may be more effective for quickly responding to and regulating new illicit drugs.

Our report intended to help relevant governments, law enforcement bodies, non-governmental organizations, investigative reporters, and technology companies better identify, understand, and counteract illicit synthetic drug networks. By taking the actions outlined above, relevant stakeholders can enhance the effectiveness of their counter-opioid trafficking efforts by more quickly identifying likely vendors, pseudonyms for banned substances, and novel substances created to evade existing regulations. To be most effective, however, those on the frontlines of countering synthetic drug trafficking, from law enforcement to social media companies, must continue to coordinate and share pertinent information with one another. The combined effect will be more targeted and comprehensive investigations that create a higher cost of doing business for vendors and, ultimately, the significant disruption of the illicit networks facilitating synthetic drug trafficking.

Endnotes

1 "Where are the pharma manufacturing hotspots?" Pharmaceutical Technology, 2 April 2018, https://www.pharmaceutical-technology.com/features/pharma-manufacturing-hotspots/.

2 "Terminology and Information on Drugs – Third Edition." United Nations Office on Drugs and Crime (UNODC), https://www.unodc.org/unodc/en/scientists/terminology-and-information-on-drugs_new.html

3 "Extent of Licit Trade in Precursors and the Latest Trends in Precursor Trafficking." Precursors, INCB, 2017, pp. 12-36, https://www.incb.org/documents/PRECURSORS/TECHNICAL_REPORTS/2017/Report_breakdown/English/7a_Extent_of_licit_trade_in_precursors_2017.pdf

4 "What are NPS?" Laboratory and Scientific Section Portals, United Nations Office on Drugs and Crime (UNODC), https://www.unodc.org/LSS/Page/NPS.

5 Terminology and Information on Drugs – Third Edition." United Nations Office on Drugs and Crime (UNODC), https://www.unodc.org/unodc/en/scientists/terminology-and-information-on-drugs_new.html

6 "Precursor Control." World Drug Report 2014, UNODC, 2014, pp. 55-93, https://www.unodc.org/documents/wdr2014/Chapter_2_2014_web.pdf

7 Johnson, David E.A., Varun Vira, and Thomas Ewing, Constructive Disruption: Exploiting Publicly Available Information to Address Today's Security Challenges, C4ADS, February 2019https://static1.squarespace.com/static/566ef8b4d8af107232d5358a/t/5cb4e002919c96000155db0d/1555357705746/White+Paper_Constructive+Disruption.pdf

8 To develop this database, we used Feedly, a platform that collects open source news and reporting across 11 different languages. Sources were collected by Feedly based on a list of keywords related to fentanyl and US drug seizures. Information from these sources was then coded into a spreadsheet and structured to facilitate analysis and expose locations where fentanyl is commonly produced, trafficked, and seized. https://feedly.com/.

9 For example, while we were collecting vendor data – between approximately January 2019 and May 2019 – roughly 80 listings were removed. In such cases, however, cached or archived copies of these websites were often still available for review.

10 Not all areas of the United States, however, have been impacted equally by the effects of synthetic drug abuse. For instance, data from the National Institute of Drug Abuse (NIDA) shows that, in 2018, West Virginia had the highest rate of opioid-involved overdose deaths (42.4 per 100,000), while Hawaii had the lowest (4.1).
"Opioid Data Analysis and Resources." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/data/analysis.html ; "Opioid Summaries by State." National Institute on Drug Abuse, 16 April 2020, www.drugabuse.gov/drug-topics/opioids/opioid-summaries-by-state.

11 "Opioid Data Analysis and Resources." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/data/analysis.html ; "Understanding the Epidemic." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/epidemic/index.html.

12 "Synthetic Opioid Overdose Data." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/data/fentanyl.html.

13 "Understanding the Epidemic." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/epidemic/index.html.

14 "Opioid Overdose Crisis." National Institute on Drug Abuse, 27 May 2020, www.drugabuse.gov/drug-topics/opioids/opioid-overdose-crisis.

15 "Understanding the Epidemic." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/epidemic/index.html.

16 "Opioids." National Institute on Drug Abuse, https://www.drugabuse.gov/drug-topics/opioids.

17 "Understanding the Epidemic." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/epidemic/index.html.

18 Ibid.

19 "Fentanyl DrugFacts." National Institute on Drug Abuse, February 2019, https://www.drugabuse.gov/publications/drugfacts/fentanyl ; University of California, San Francisco. "Drug wholesalers drove fentanyl's deadly rise, study shows: Cheap, plentiful drug entered wholesale markets following heroin supply shocks." ScienceDaily, ScienceDaily, 5 December 2018, www.sciencedaily.com/releases/2018/12/181205093801.htm.

20 "What Is Heroin Cut With?" Edited by Marisa Crane. American Addiction Centers, https://americanaddictioncenters.org/heroin-treatment/cut-with

21 "Fentanyl." Opioid Overdose, Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/drugoverdose/opioids/fentanyl.html.

22 O'Donnell JK, Halpin J, Mattson CL, Goldberger BA, Gladden RM. "Deaths Involving Fentanyl, Fentanyl Analogs, and U-47700 — 10 States, July–December 2016." Morbidity and Mortality Weekly Report, vol. 66(43), pp. 1197–1202, Centers for Disease Control and Prevention (CDC), 27 October 2017, https://www.cdc.gov/mmwr/volumes/66/wr/mm6643e1.htm.

23 Kamp, Jon and Arian Campo-Flores. "Hooked: One Family's Ordeal With Fentanyl." The Wall Street Journal, 19 May 2016, www.wsj.com/articles/hooked-one-familys-ordeal-with-fentanyl-1463158112?mod=article_. ; Peterson, Kristina and Stephanie Armour. "Opioid vs. Crack: Congress Reconsiders Its Approach to Drug Epidemic." The Wall Street Journal, 5 May 2018, https://www.wsj.com/articles/opioid-v-crack-congress-reconsiders-its-approach-to-drug-epidemic-1525518000.

24 "Drug Scheduling." United States Drug Enforcement Administration (DEA), https://www.dea.gov/drug-scheduling.

25 "Drug Scheduling." United States Drug Enforcement Administration (DEA), https://www.dea.gov/drug-scheduling.

26 On an international level, chemical substances are controlled by the United Nations Office on Drugs and Crime (UNODC) under three main drug conventions: the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol; the Convention on Psychotropic Substances of 1971; the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988. Countries party to these conventions "are required to ensure that the respective mandatory control measures are applied to substances" listed in the schedules of these conventions. "International Drug Control Conventions." United Nations Commission on Narcotic Drugs (UNCND), United Nations Office on Drugs and Crime (UNODC), https://www.unodc.org/unodc/en/commissions/CND/conventions.html.

27 "Controlled Substances – Alphabetical Order." Diversion Control Division, United States Drug Enforcement Administration (DEA), 20 August 2020, https://www.deadiversion.usdoj.gov/schedules/orangebook/c_cs_alpha.pdf

28 "Drugs of Abuse (A DEA Resource Guide: 2017 Edition)." United States Drug Enforcement Administration (DEA), 15 June 2017, https://www.dea.gov/sites/default/files/drug_of_abuse.pdf.

29 Van Bever, W.F., et al. "Synthetic Analgesics. Synthesis and pharmacology of the diastereoisomers of N-[3-Methyl-1-(2-phenylethyl)-4-piperidyl]-N-phenylpropanamide and N-[3-Methyl -1(1--methyl-2-phenethyl)-4-piperidyl]-N-phenylpropanamide." Journal of Medicinal Chemistry, vol. 17, no. 10, 1974, pp. 1047–1051.

30 At present, there may be more than 20 different chemical substances that could act as substitutes for NPP and 4-ANPP. For additional information, see: Wong, Liqun L. "Precursor Chemicals Trends: U.S. Perspectives." Drug & Chemical Evaluation Section, United States Drug Enforcement Administration (DEA), http://www.cicad.oas.org/cicad-docs/Document.aspx?Id=5288.

31 "April 2019 – China: Announcement to place all fentanyl-related substances under national control." Laboratory and Scientific Section Portals, United Nations Office on Drugs and Crime (UNODC), April 2019, https://www.unodc.org/LSS/Announcement/Details/f2adea68-fbed-4292-a4cc-63771c943318.

32 While this ban made any form of synthesized fentanyl illegal, it did not schedule all precursor chemicals used to make fentanyl. Myers, Steven Lee and Abby Goodnough. "China Bans All Types of Fentanyl, Cutting Supply of Deadly Drug to U.S. and Fulfilling Pledge to Trump." The New York Times, 1 April 2019, https://www.nytimes.com/2019/04/01/world/asia/china-bans-fentanyl-trump.html; McNeil, Sam and Erika Kinetz. "China to regulate all fentanyl drugs as controlled substance." Associated Press, 1 April 2019, https://www.apnews.com/d7e292d2b634411d86924bf4034cd62d; Ingber, Sasha. "China To Close Loophole On Fentanyl After U.S. Calls For Opioid Action." National Public Radio (NPR), 1 April 2019, https://www.npr.org/2019/04/01/708801717/china-to-close-loophole-on-fentanyl-after-u-s-calls-for-opioid-action.

33 United States, Department of Justice, Drug Enforcement Administration (DEA). "Schedules of Controlled Substances: Temporary Placement of Fentanyl-Related Substances in Schedule I." 83 Fed. Reg. 5188. 6 February 2018.

34 "CAS REGISTRY - The gold standard for chemical substance information." CAS, a division of the American Chemical Society. https://www.cas.org/support/documentation/chemical-substances.

35 International Union of Pure and Applied Chemistry (IUPAC). https://iupac.org/.

36 US National Institutes of Health (NIH), National Library of Medicine. "Substance Name: Fentanyl." ChemIDplus. https://chem.nlm.nih.gov/chemidplus/rn/437-38-7. Accessed on June 20, 2019.

37 It is possible for substances to have multiple, equally valid IUPAC names. NIH, National Library of Medicine. "Substance Name: Fentanyl." ChemIDplus. https://chem.nlm.nih.gov/chemidplus/rn/437-38-7.

38 Myers, Steven Lee and Abby Goodnough. "China Bans All Types of Fentanyl, Cutting Supply of Deadly Drug to U.S. and Fulfilling Pledge to Trump." The New York Times, 1 April 2019. https://www.nytimes.com/2019/04/01/world/asia/china-bans-fentanyl-trump.html; McNeil, Sam and Erika Kinetz. "China to regulate all fentanyl drugs as controlled substance." Associated Press, 1 April 2019. https://www.apnews.com/d7e292d2b634411d86924bf4034cd62d; Ingber, Sasha. "China To Close Loophole On Fentanyl After U.S. Calls For Opioid Action." National Public Radio, 1 April 2019. https://www.npr.org/2019/04/01/708801717/china-to-close-loophole-on-fentanyl-after-u-s-calls-for-opioid-action.

39 Myers, Steven Lee and Abby Goodnough; McNeil, Sam and Erika Kinetz; Ingber, Sasha.

40 Wee, Sui-Lee. "Trump Says China Will Curtail Fentanyl. The U.S. Has Heard That Before." The New York Times, 3 December 2018. https://www.nytimes.com/2018/12/03/business/fentanyl-china-trump.html.

41 United States, Department of Justice, DEA. "Schedules of Controlled Substances: Temporary Placement of Fentanyl-Related Substances in Schedule I." 83 Fed. Reg. 5188. 6 February 2018.

42 Van Bever, W.F., et al. "Synthetic Analgesics. Synthesis and pharmacology of the diastereoisomers of N-[3-Methyl-1-(2-phenylethyl)-4-piperidyl]-N-phenylpropanamide and N-[3-Methyl -1(1--methyl-2-phenethyl)-4-piperidyl]-N-phenylpropanamide." Journal of Medicinal Chemistry, vol. 17, no. 10, 1974, pp. 1047–1051.

43 In April 2020, the US Drug Enforcement Administration (DEA) designated the fentanyl precursors 4-AP and Benzylfentanyl as Schedule I substances. Yet these scheduling designations only apply in the United States, meaning Chinese companies would still be able to legally produce and ship these precursors abroad unless also controlled domestically in China. United States, Department of Justice, DEA, Diversion Control Division. "Designation of Benzylfentanyl and 4-Anilinopiperidine, Precursor Chemicals Used in the Illicit Manufacture of Fentanyl, as List I Chemicals." Federal Register, vol. 85, no. 73, 15 April 2020, pp. 20822—20829. https://www.deadiversion.usdoj.gov/fed_regs/rules/2020/fr0415.htm.

44 According to the UNODC, "masked" precursors "present a significant challenge to control measures as there is theoretically an almost infinite number of ways to 'mask' or disguise scheduled precursors from existing controls." United Nations Office on Drugs and Crime (UNDOC). "An expanding synthetic drugs market – Implications for precursor control." Global Smart Update, vol. 23, March 2020. https://www.unodc.org/documents/scientific/Global_SMART_23_web2.pdf

45 International Narcotics Control Board (INCB). "Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances." 2019. http://www.unis.unvienna.org/pdf/2019/INCB/Precursors_without_annexes_E_ebook.pdf.

46 Cyber Search Centre of the Integrated Companies Registry Information System (ICRIS) 公司註冊處綜合資訊系統. https://www.icris.cr.gov.hk/csci/.

47 Slater, Matt. "5 Key Features of Chinese Company Names." Safer, Better Business in China. China Checkup, 25 May 2016. https://www.chinacheckup.com/blogs/articles/chinese-company-names.

48 C4ADS identified 543,132 registered biological technology, trade/commerce, chemical, and pharmaceutical companies with location data in the Chinese corporate registry. The industry sample was collected using a 2019 scrape of the Chinese corporate registry, and filtered for the following name endings: biological technology limited company (生物科技有限公司), trade / commerce limited company (贸易/商贸有限公司), chemical limited company (化工有限公司), and pharmaceutical limited company (医药有限公司).

49 Registered capital is the amount of money a company had upon registration.

50 Registered capital data for similar types of companies (i.e., biological technology, trade/commerce, chemical, and pharmaceutical companies) was pulled from the previously referenced 543,132 company industry sample. In this sample, the most commonly registered capital value is 0.5 million RMB ($71,429 USD), with 106,860 companies. The second most frequently registered capital is 1 million RMB ($142,857 USD), with 100,902 companies.

51 Of the 543,132 companies in the previously referenced sample, the majority are located in Shanghai (41,853), with Guangzhou a close second (41,474). Beijing is the third most frequent location, with 24,574 companies. Wuhan ranks 15th (7,292) and Shijiazhuang ranks 19th (5,791).

52 One hypothesis for this divergence is that Shijiazhuang, where the economy has traditionally relied on low-end manufacturing and coal-fired power plants, has struggled to achieve Chinese national and regional GDP growth goals – state and local level production must increase annually by 6.5%. Given Shijiazhuang's reliance on manufacturing, shifting to the production and sale of illicit chemical products could be intended to supplement low GDP numbers. Specifically, China's State Council established the Shijiazhuang High-tech Industrial Development Zone (Shijiazhuang HIDZ) in 1991, designating the following industries as the HIDZ's primary focus: information technology, biopharmaceuticals, machinery, automobiles, fine chemicals and logistics. Reuters Staff. "China to close more than 1,000 coal mines in 2016: energy bureau." Reuters. 22 February 2016. https://www.reuters.com/article/us-china-energy-coal/china-to-close-more-than-1000-coal-mines-in-2016-energy-bureau-idUSKCN0VV0U5.

53 Etizolam falls in a legal grey area. As of October 2020, the DEA has not issued any scheduling controls for etizolam, though there has been a rise in illicit distribution of the substance for recreational use in the United States. United States, DEA. "Etizolam." Diversion Control Division: Drug & Chemical Evaluation Section. March 2020. https://www.deadiversion.usdoj.gov/drug_chem_info/etizolam.pdf.

54 US National Institutes of Health (NIH), National Library of Medicine, National Center for Biotechnology Information. "Compound Summary: Fluoroketamine." Pubchem. https://pubchem.ncbi.nlm.nih.gov/compound/Fluoroketamine.

55 --陈. "Buy 25i-Nbome,2-FMA, 3-FMC, 3,4DMMC,Pain Killers,Mephedrone,Heroine,LSD, ketamine,MDMA,Ephedrine,4meo-pcp,4-CAB,4-FA,JWH018,Ephedrine." SlideShare. 11 May 2017. https://pt.slideshare.net/ssuser968761/buy-25inbome2fma-3fmc-34dmmcpain-killersmephedroneheroinelsd-ketaminemdmaephedrine4meopcp4cab-4fajwh018ephedrine.

56 --陈. "Buy 25i-Nbome,2-FMA, 3-FMC, 3,4DMMC,Pain Killers,Mephedrone,Heroine,LSD, ketamine,MDMA,Ephedrine,4meo-pcp,4-CAB,4-FA,JWH018,Ephedrine." SlideShare. 11 May 2017. https://pt.slideshare.net/ssuser968761/buy-25inbome2fma-3fmc-34dmmcpain-killersmephedroneheroinelsd-ketaminemdmaephedrine4meopcp4cab-4fajwh018ephedrine.

57 An in-depth analysis of cryptocurrency is beyond the scope of this report. For more details pertaining to 13it's blockchain, and inward and outward movements associated with the address, please reference: https://www.blockchain.com/btc/address/13itGxzHdRYSFBcj7H15ns4f8p4B6krDuQ?page=1

58 Manning. Landon. "BTCC Announces The "Indefinite" Closure Of Its Mining Pool." Bitcoin Magazine. 6 November 2018. https://bitcoinmagazine.com/articles/btcc-announces-indefinite-closure-its-mining-pool.

59 In November 2019, however, a Chinese court did convict nine individuals for being members of an international fentanyl smuggling operation.
Jiang, Steven and Westcott, Ben, "China sentences fentanyl drug ring in rare public trial amid US trade talks." CNN.com, CNN, 7 November 2019, https://www.cnn.com/2019/11/07/asia/china-us-fentanyl-trump-hebei-intl-hnk/index.html.
Ting, Fu and Wang, Yanan. "China says Trump's claims about fentanyl origin are false." APNews.com, The Associated Press, 3 September 2019, https://apnews.com/7010fb02262f49f585347490cdd950b8.

60 CBP's fiscal year 2019 was Oct. 1, 2018 – Sept. 30, 2019. Through March of FY 2020, CBP has seized 1,074 pounds of fentanyl. "CBP Enforcement Statistics Fiscal Year 2020." CBP.gov, US Customs and Border Protection, September 2020, https://www.cbp.gov/newsroom/stats/cbp-enforcement-statistics.

61 Ibid.

62 According to the 2019 NDTA, the total number of fentanyl reports submitted to the National Forensic Laboratory Information System (NFLIS) increased by 65% between 2016 and 2017, from 34,204 to 56,530. Ohio, Pennsylvania, Massachusetts, New York, and New Jersey had the most fentanyl reports in NFLIS in 2017.
2019 National Drug Threat Assessment. DEA.gov, US Drug Enforcement Administration, December 2019, https://www.dea.gov/sites/default/files/2020-01/2019-NDTA-final-01-14-2020_Low_Web-DIR-007-20_2019.pdf.

63 For the purposes of analyzing the Synthetic Drug Seizure Database, C4ADS considered North America to consist of Canada, Mexico, and the United States.

64 Of the 26 seizures where China was the origin country, 24 occurred in the United States, 1 in Canada, and 1 in France.

65 Seizure instances collected by C4ADS also indicate that, of the US ports of entry along the Mexico border, Nogales, Arizona had the largest weight of fentanyl seized (259 kilograms) between January 2017 and July 2019. These findings correspond to those of CBP, which seized, 681 kilograms of fentanyl along the SWB in 2018, the majority of which was seized in California (75.7%), followed by Arizona (20.2%).
2019 National Drug Threat Assessment. DEA.gov, US Drug Enforcement Administration, December 2019, https://www.dea.gov/sites/default/files/2020-01/2019-NDTA-final-01-14-2020_Low_Web-DIR-007-20_2019.pdf.

66 Ibid.

67 Ibid.

68 Ibid.

69 Ibid.

70 Non-medical fentanyl and other unregulated chemical products started being actively advertised and marketed on the clear web between 2010 and 2011. See: Fentanyl and Related Threats. The United States' Attorneys' Bulletin, United States Department of Justice, Volume 66, Number 4, July 2018, https://www.justice.gov/usao/page/file/1083791/download.

71 实验室毒品 in Chinese characters.

72 CAS, a division of the American Chemical Society. https://www.cas.org/ https://www.cas.org/support/documentation/chemical-substances.

73 International Union of Pure and Applied Chemistry (IUPAC). https://iupac.org/.

74 On November 3, 2020, MAPA was included in Table I of the Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988.
"May 2020 – UNODC: CND decision on international control of two fentanyl analogues enters into force – remaining decisions will enter into force in November 2020." UNODC.org, United Nations Office on Drugs and Crime, May 2020, https://www.unodc.org/LSS/Announcement/Details/64167b6d-968d-4d0c-bc65-5deb99683191.

75 Lists of: Scheduling Actions Controlled Substances Regulated Chemicals. USDOJ.gov, US Drug Enforcement Administration, August 2020, https://www.deadiversion.usdoj.gov/schedules/orangebook/orangebook.pdf.

76 See: Goodnough, Abby and Myers, Steven Lee. "China Bans All Types of Fentanyl, Cutting Supply of Deadly Drug to U.S. and Fulfilling Pledge to Trump." NYTimes.com, The New York Times, 1 April 2019, https://www.nytimes.com/2019/04/01/world/asia/china-bans-fentanyl-trump.html; Kinetz Erika and McNeil, Sam. "China to regulate all fentanyl drugs as controlled substance." APNews.com, The Associated Press, 1 April 2019, https://www.apnews.com/d7e292d2b634411d86924bf4034cd62d; Ingber, Sasha. "China To Close Loophole On Fentanyl After U.S. Calls For Opioid Action." NPR.org, National Public Radio, 1 April 2019, https://www.npr.org/2019/04/01/708801717/china-to-close-loophole-on-fentanyl-after-u-s-calls-for-opioid-action.

77 Sources containing a more in-depth discussion on the dark web's role in in drug sales include:
Drugs and the darknet: Perspectives for enforcement, research, and policy. EMCDDA – Europol, European Monitoring Centre for Drugs and Drug Addiction, 2017, https://www.emcdda.europa.eu/system/files/publications/6585/TD0417834ENN.pdf;
Kruithof, Kristy, Judith Aldridge, David Décary Hétu, Megan Sim, Elma Dujso, and Stijn Hoorens, The role of the 'dark web' in the trade of illicit drugs. RAND.org, RAND Europe, 2016, https://www.rand.org/pubs/research_briefs/RB9925.html.

78 Christian, Jon, "The 'Exit Scam' is the Darknet's Perfect Crime." Vice.com, Vice News, 4 February 2015, https://www.vice.com/en_us/article/xyw7xn/darknet-slang-watch-exit-scam; Redman, Jamie, "Darknet Users Allege Wall Street Market Exit Scammed, Possibly Snatching $30M." Bitcoin.com, Bitcoin News, 20 April 2019, https://news.bitcoin.com/darknet-users-allege-wall-street-market-exit-scammed-possibly-snatching-30m/.

79 The DEA also makes note of this in their 2019 National Drug Threat Assessment.
2019 National Drug Threat Assessment. DEA.gov, US Drug Enforcement Administration, December 2019, https://www.dea.gov/sites/default/files/2020-01/2019-NDTA-final-01-14-2020_Low_Web-DIR-007-20_2019.pdf.

80 "June 2020 – UNODC – SMART: Emergence of the new synthetic opioid isotonitazene." UNODC.org, United Nations Office on Drugs and Crime, June 2020, https://www.unodc.org/LSS/Announcement/Details/2d09cc01-3272-45e1-a898-b98898b9215c.

81 "EMCDDA initial report on the new psychoactive substance N,N-diethyl-2-[[4-(1-methylethoxy)phenyl]methyl]-5-nitro-1H-benzimidazole-1-ethanamine (isotonitazene)." EMCDDA, European Monitoring Centre for Drugs and Drug Addiction, April 2020, https://www.emcdda.europa.eu/publications/initial-reports/isotonitazene_en.

82 Krotulski, Alex J., Logan, Barry K., and Mohr, Amanda L.A., "Trend Report: Q1 2020." NPSDiscovery.org, NPS Discovery and the Center for Forensic Science Research and Education (CSFRE), 2020, https://www.npsdiscovery.org/wp-content/uploads/2020/04/2020-Q1_NPS-Opioids_Trend-Report.pdf; Krotulski, Alex J., Logan, Barry K., and Mohr, Amanda L.A., "Trend Report: Q2 2020." NPSDiscovery.org, NPS Discovery and the Center for Forensic Science Research and Education (CSFRE), 2020, https://www.npsdiscovery.org/wp-content/uploads/2020/07/2020-Q2_NPS-Opioids_Trend-Report.pdf; Krotulski, Alex J., Logan, Barry K., and Mohr, Amanda L.A., "Trend Report: Q3 2020." NPSDiscovery.org, NPS Discovery and the Center for Forensic Science Research and Education (CSFRE), 2020, https://www.npsdiscovery.org/wp-content/uploads/2020/10/2020-Q3_NPS-Opioids_Trend-Report.pdf.

83 U.S. Department of Justice, "Schedules of Controlled Substances: Temporary Placement of Isotonitazene in Schedule I," Federal Register, Vol. 85, Number 118, June 18, 2020. Available at https://www.deadiversion.usdoj.gov/fed_regs/rules/2020/fr0618.htm

84 "Commission initiates ban on new harmful psychoactive substance isotonitazene", EU Commission Press, September 2, 2020. Available at https://www.pubaf-fairsbruxelles.eu/fight-against-drugs-commission-initiates-ban-on-new-harmful-psychoactive-substance-isotonitazene-eu-commission-press/

85 "Eleven New Psychoactive Substances to be considered for international control by 43rd ECDD", World Health Organization, July 21, 2020. Available at https://www.who.int/news/item/21-07-2020-eleven-new-psychoactive-substances-to-be-considered-for-international-control-by-43rd-ecdd

86 "NPS Opioids in the United States, Trend Report Q2," NPS Discovery, Available at https://www.npsdiscovery.org/wp-content/uploads/2020/07/2020-Q2_NPS-Opioids_Trend-Report.pdf ; "NPS Opioids in the United States, Trend Report Q3," NPS Discovery, Available at https://www.npsdiscovery.org/wp-content/uploads/2020/10/2020-Q3_NPS-Opioids_Trend-Report.pdf

87 Will Weissert, "DHS report: China hid virus' severity to hoard supplies," Associated Press, May 4, 2020. Available at https://apnews.com/bf685dcf52125be54e030834ab7062a8

88 The former is an anti-malarial drug that some world leaders touted as effective at preventing COVID-19 and the latter is a drug for which the US Food and Drug Administration (FDA) granted Emergency Use Authorization for the treatment of COVID-19. https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-issues-emergency-use-authorization-potential-covid-19-treatment

89 Daniel Threlfall, "What is Dropshipping?" Oberlo, July 1, 2020. Available at https://www.oberlo.com/blog/what-is-dropshipping

90 Avi Krish Bedi, "How India Could Fuel the Global Synthetic Drug Epidemic," The Wire (India), June 26, 2019. Available at https://thewire.in/health/how-india-could-fuel-the-global-synthetic-drug-epidemic ; "India Pharma 2020 Propelling access and acceptance, realising true potential," McKinseys & Company, 2020. Available at https://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/Pharma%20and%20Medical%20Products/PMP%20NEW/PDFs/778886_India_Pharma_2020_Propelling_Access_and_Acceptance_Realising_True_Potential.ashx

91 "World Drug Report 2018: Executive Summary," UN Office on Drug Control, June 2018. Available at https://www.unodc.org/wdr2018/prelaunch/WDR18_Booklet_1_EXSUM.pdf; Avi Krish Bedi, "How India Could Fuel the Global Synthetic Drug Epidemic," The Wire (India), June 26, 2019. Available at https://thewire.in/health/how-india-could-fuel-the-global-synthetic-drug-epidemic

92 Natalie Tecimer, "Tramadol: The Dangerous Opioid From India," The Diplomat, January 19, 2018. Available at https://thediplomat.com/2018/01/tramadol-the-dangerous-opioid-from-india/

93 "Fentanyl Flow to the United States," DEA Intelligence Report, January 2020. Available at https://www.dea.gov/sites/default/files/2020-03/DEA_GOV_DIR-008-20%20Fentanyl%20Flow%20in%20the%20United%20States_0.pdf

94 Ibid

95 "Doomsday chemical lab ran for a decade," Times of India, October 3, 2018. Available at https://timesofindia.indiatimes.com/india/fentanyl-lab-ran-in-dark-for-a-decade/articleshow/66047362.cms; "Breaking Bad: Deadly fentanyl worth Rs 100 cr recovered from MP, three including scholar nabbed," DNA (India), September 30, 2018. Available at https://www.dnaindia.com/india/report-breaking-bad-deadly-fentanyl-worth-rs-100-cr-recovered-from-mp-three-including-scholar-nabbed-2669769

96 "Indian Businessman Charged with Drug Importation, Smuggling, and Money Laundering Offenses ," Department of Justice, June 27, 2019. Available at https://www.justice.gov/usao-wdpa/pr/indian-businessman-charged-drug-importation-smuggling-and-money-laundering-offenses

97 "Synthetic Drugs in Southeast Asia," UN Office on Drugs and Crime, March 2019. Available at https://www.unodc.org/documents/southeastasiaandpacific/Publications/2019/2019_The_Challenge_of_Synthetic_Drugs_in_East_and_SEA.pdf

98 Ibid. This production largely gets trafficked to markets in neighboring and regional countries, such as China, Australia, New Zealand, South Korea, and Bangladesh.

99 Tom Allard, "The Hunt for Asia's El Chapo," Reuters, October 14, 2019. Available at https://www.reuters.com/investigates/special-report/meth-syndicate/

100 Duc Hoang, Hoang Phuong, Thanh Lam, "Vietnam's fight against drug cartels on Laos border ," VN Express (Vietnam), 2019. Available at https://e.vnexpress.net/projects/vietnams-fight-against-drug-cartels-on-laos-border-3890848/index.html ; Chris Uhlmann and Joel Tozer, "Inside the Golden Triangle, where warlords and drug barons reign," South China Morning Post, March 15, 2020. Available at https://www.smh.com.au/world/asia/inside-the-golden-triangle-where-warlords-and-drug-barons-reign-20200310-p548io.html

101 Inshik Sim, Shawn Kelley, Magali Lapouge, and Akara Umapornsakula, "Transnational Organized Crime in Southeast Asia: Evolution, Growth and Impact," UN Office on Drugs and Crime, 2019. Available at https://www.unodc.org/documents/southeastasiaandpacific/Publications/2019/SEA_TOCTA_2019_web.pdf

102 "Golden Triangle's drug production surges amid opioid worries," Al Jazeera, November 7, 2018. Available at https://www.aljazeera.com/news/2018/11/golden-triangle-drug-production-surges-opioid-worries-181107034455846.html

103 Ibid.

104 Mexican authorities seized a fentanyl laboratory as early as May 2006, in the city of Toluca. "Fentanyl Situation Report SR-000001," US Department of Justice National Drug Intelligence Center, June 5, 2006. Available at https://www.justice.gov/archive/ndic/pubs11/20469/index.htm

105 Steven Dudley, Deborah Bonello, Jaime Lopez-Aranda, Mario Moreno, Tristan Clavel, Bjorn Kjelstad, and Juan Jose Restrepo, "Mexico's Role in the Deadly Rise of Fentanyl," InsightCrime, February 2019. Available at https://www.insightcrime.org/investigations/mexico-deadly-rise-fentanyl/

106 "Fentanyl Lab busted by the FGR in Garcia," Borderland Beat, June 17, 2019. Available at http://www.borderlandbeat.com/2019/06/fentanyl-lab-busted-by-fgr-in-garcia.html

107 "Comunicado FGR 220/20. FGR obtiene vinculación contra dos hombres, a quienes se les aseguró más de 300 mil pastillas de fentanilo," Fiscalia General de la Republica, July 12, 2020. Available at https://www.gob.mx/fgr/prensa/comunicado-fgr-220-20-fgr-obtiene-vinculacion-contra-dos-hombres-a-quienes-se-les-aseguro-mas-de-300-mil-pastillas-de-fentanilo?idiom=es

108 Sean O'Connor, "Meth Precursor Chemicals from China: Implications for the United States," U.S.-China Economic and Security Review Commission, July 18, 2016. Available at https://www.uscc.gov/research/meth-precursor-chemicals-china-implications-united-states

109 Romain Le Cour Grandmaison, Nathaniel Morris, and Benjamin Smith, "The Last Harvest? From the US Fentanyl Boom to the Mexican Opium Crisis," Journal of Illicit Economies and Development, November 29, 2019. Available at https://jied.lse.ac.uk/articles/10.31389/jied.45/; Kirk Semple, "Mexican Opium Prices Plummet; Driving Poppy Farmers to Migrate," New York Times, July 7, 2019, Available at https://www.nytimes.com/2019/07/07/world/americas/mexico-drugs-migration.html

110 "Establishing a list of fentanyl-related substances with no known legitimate uses," International Narcotics Control Board, Available at https://www.incb.org/incb/en/opioids_project/fentanyl-related-substances-with-no-known-legitimate-use.html. Last accessed 11/2/2020

EXHIBIT 110

ᵭᵭᵭᶻᵭᵭᵭᵭᵭᵭᵭᵉᵠᵭᴍᵭᵭ壩

Pharmaceutical Research Chemicals

manufacturing and Trading Chemicals Materials

biomedical engineering

Biomedical Science and Engineering

biomedical science

Carboxymethyl Cellulose-CMC for Mosquito Coil**s raw material-

Bio-Chemical Industry

research chemical

Pharmaceutical Intermediates

for lab research

For Pharmaceutical use only

As pharmaceutical intermediates

Laboratory Chemicals

Chemicals for lab research

PHARMA : CMC

pharmaceutical intermediates forum

nebivolol pharmaceutical intermediates

pharma intermediates

compounds **

research chemicals Ethylone

R. Chemicals

psychoactive research chemical

designer drug

active research chemicals distributors

research chemicals distributors

Pharmaceuticals and Biotechnology

bulk drug □**ᵠ

Intermediates For Pharmaceuticals

Organic Intermediates *л**ᴍ***

Biochemical Reagents & Related Compounds

Biochemicals & Related Compounds

legal highs

bulk pharmaceutical chemicals □��ę

laboratory research chemicals
t research chemicals (often called designer drugs or bath salts

research chemicalonline shop inurl:store OR inurl:shop

legal highs,��novel psychoactive substances,��designer drugs,herbal highs

Buy Bath Salts Online��store,eshop,webshop

legal highs

Online��store,eshop,webshop, online eshops,webstore

for sale online online drugstore

Methylone,mefedrona MDPV,3mmc,5-apb,6-apb,a-pvp FUB-APINACA��jwh018 ,butylone,lsd

MEFEDRON (4MMC),mefedrona ,, Mexedrone

 METHYLONE, MDMA, JWH, MCAT, BUTHYLONE (BK-MBDB), KETAMIN HCL, EFEDRIN HCL NA PRODEJ

Buy Mdma,JWH-018 ,JWH-250,2ci, 2CP, 2CE ,2CB, 2CD,F,5-Meo-DMT,4-Aco-DMT (4MMC)

mdma jwh-018-jwh-250 2ci-2cp-2ce-2cb-2cdf5-meo-dmt4-aco-dmt-4mmc

Kaufen Amphetamine, MDMA, AM-2201, Mephedron, MDPV, Dmt, Morphine, JWH, 2C-E, Ketamin, HU-210 und HU

BK-MBDB, Metylone Bk-MDMA

reines MDMA, Buphedrone, CP 47, 497, JWH-018, JWH-073, JWH-200, JWH-250, AM2201, Morphine,5-APB, MPA, 6-APB, Benzo Fury, Bromo Dragon Fly, LSD, 2C-C, 2C-D, 2C-E, 2C-I, 2C-P, 2C-T-2, 5 -MeO-Dalt, Dimethocaine, MDAI, MDPV, O-Desmethyltramadol, Butylone, Methedrone, Flephedrone, Ketamin, amphitamine, Methamphetamin, 5-MeO-Dalt, Naphyrone, Ecstasy-Pillen, Xanax

Ketamine or Heroin DMT, MDMA, PV8, metamfetaminy, 4-MEC, 2-FA, 4-FA, 3-CMC, Apvp.
Mephedrone (4-MMC), Mefedron, MPDV, am2201, MDMA, Methylone, JWH
 Ab-chminaca pv8 crystal Buy A-PVP Buy AB-Fubinaca THJ018 NM2201

�������

Domz.com
europages.com

��� site:.******

��GOOGLE ********IJ**3****FORUM ****BBS**** BULLITIN BOARD

4.27 ********buy ****3****+ ***

******’********ƥo****ļ**д**ģ********
Attach our best-selling lines and in stock products for your reference, And the

purity is above 99%,the price will be very competitive .

Meanwhile I advice you can see our samples (free shipping) ,I think you will be satisfied with them.

Best-selling products : BK-2C-B��crystal) 2-NMC(powder and crystal) 4-CEC(crystal) FUB-AMB TH-PVP 4mpd NM-2201 MMBC 5-methylethylone BK-EBDP U-47700
AMB-FUBICANA ADB-FUBINACA 5F-PCN BK-EBDP(crystal) AB-Chminaca 2-NMC(crystal or powder) 4-CPRC (crystal or powder) 4-EMC 4F-PHP 4F-PV8(crystal) 4C-PVP
5F-PV8(crystal) 5f-mn-24 5FSDB005 5FNPB22 FAB-144 EG-018 MDPHP 4-CL-PVP

ADRAFINIL(crystal or powder) DOC25��white powder) Dibutylone(crystal) THJ-018 5FSDB005 5FNPB22 FUBPB22 ADRAFINIL(Powder and crystal)

Waitting for your early reply!

Thanks & Regards
Kathy

□□□□□□

Packaging Detail: aluminium alloy bag or according to your requirements

Delivery : within 1-3 days after payment

□□□□□□□□□

2-Fa(2-Flouroamphetamine) 4-CMC(Crystal) 4-Fa(4-Fluoroamphetamine) 4-CEC 4F-PVP(Powder) 4-CPRC 4-EMC BK-2C-B BK-EBDP 4-Aco-DMT 4-MPD5-Meo-Dalt 5-Meo-Mipt A-PBP A-PVT AB-FUPINACA ADB-PINACA Butylone FDU-Pb-22 MAM-2201 2-Faaaa FAB-144 EG-018 Etizolam
4-CMC(Powder) 4-FMA(4-Fluoromethamphetamine) 5-Fur-144 5-Meo-Dipt 5F-AKB-48 A-PVP(Powder) AB-Chminaca 5-Methylethylone 5-F-MN-21 5F-MN-24/5F-NNE1 AB-PINACA AKB-48 DOC Ethylone(big or small crystal) FUB-APINACA MDMB-CHMINACA 3-CMC(3-Chloromethcathinone) MMBC AMB-FUBINACA
4-EMC 4F-PVP(Crystal) 5-MAPB 5-MEO-DMT 5F-PB-22 A-PVP(Crystal) AB--FUBINACA
ADB-FUBINACA AMt EAM-2201 Ethylphenidate(powder) FUB-Pb-22 Methoxetamine(MXE)
Methoxphenidine(MXP) Pentedrone XLR-11 MPA(Methiopropamine) PV-8(Powder) PB-22F PX-2 MDPV(Methylenedioxypyrovalerone)
MPHP 4-CL-PVP Adrafinil AKB-48 5F-PV8 NM-2201 EAM-2201 AM-2201 MAM-

2201
U-47700 2-FMA MDPPP MDPBP 6-APB 5-APB TH-PVP MXE AMB-FUBINACA 4F-PHP
AB-FUBINACA AB-PINACA

��Ĺ��

America(United States),
Germany,Canada,Austrilia,Hungary,ulgaria,Netherlands,Belgium ,

Honduras,Cameroon

�õı���

GOOD QUALITY 4-aco-dmt FOR GOOD PRICE

HIGH QUALITY POWDER AND CRYSTAL CHEMICALS

��æ�� green **��** lydia02 **���** xiang0229love

Tumbir**��** **����** 2748349433@qq.com **��** captainkathyuniverse**�**

facebook lee kathy **��** 2748349433@qq.com **���** xiang0229love

Twitter 2748349433@qq.com kathy79591214

Rrugs-Forum lydia02 Xiang0229love

Tumbir **���** captainkathyuniverse

reddit https://www.reddit.com/user/kathylovely/ **���** kathylovely xiang0229love

UK Chemical Research **��ţ�**kathy xiang0229love

Community & Social Network **���** kathy xiang0229love

TRUSTPILOT **���** winter@cn-gaosheng.com xiang0229love

tripadvisor **���** 290kathy xiang0229love

Bluelight **���** kathy8888 xiang0229love

The Hip forums **���**kathy789 xiang0229love

Party-vibe **���** kathy xiang0229love

Page List http://www.pagelist.org/index.php?view=post&cityid=1201&lang=en&catid=19&subcatid=298&shortcutregion=&

�����ı��

1.AdClas FREE kathy winter@cn-gaosheng.com

2.TheJuicyList.com username: kathy123 email: winter@cn-gaosheng.com
3.Hi!FreeAds.ca kathy lee winter@cn-gaosheng.com
4.Swap N Trade winter@cn-gaosheng.com kathy xiang0229love
5.SYDNEYADZ winter@cn-gaosheng.com qwofvkcqnroi
6.ANUNCIOS.EDICOSMA.COM winter@cn-gaosheng.com
7.RAGAP ESPANA
8.Canal Anuncios
9.Truebuy.com.au kathy winter@cn-gaosheng.com
10. Jaherat ���И���
11.Blenheim Classifieds
12.Goto STORE �� ���
13.BUSINESS LISTINGS.net.au �� ���
14.Segundamano Paraguay kathy xiang0229love
15.Nuevo Mundoanuncios.es �� ���
16.Romania Farms
17.clavalo.es �� ���
18.mianuncio (france)�� ���
19 billburg kathy xiang0229love
20.GLONG kathy123 2748349433@qq.com
21.CLASS14UAE
22.Classified-1 kathy123 xiang0229love
23.ASKME classifieds.com kathy xiang0229love
24.univision.com
25.Daype.com. kathy123456
26.CaliforniaSuperAds.com kathy16
27.LOCALnexo.com
28.gunlistings.org
29.mianuncio
30.FREE CHLASSFIEDS.COM
31.Classified DADDY.COM
32.Dailyads 24*7 kathy
33.AZ ad Zee kathy123456
34.Rapide-Italia kathy11
35.Qeebiz.com kathy
36.comfyads.com
37.Rapide-Ltalia
38.KazList kathy Email: winter@cn-gaosheng.com
39.amazon.co.uk kathy winter@cn-gaosheng.com
40. NashvilleIndian.com. winter@cn-gaosheng.com
41.USONLINEANDS.COM kathy lee winter@cn-gaosheng.com
42.AUNetAds.com ad ID is 907939 xiang0229love.
43.e-Delico winter@cn-gaosheng.com
44.BUZZ
45.nexoLOCAL
46.OKbazar.co.uk
47.Blidoo kathy0229 winter@cn-gaosheng.com
48. IANOL
49.MascotAdictos kathy123
50.Freecker
51.nunua winter@cn-gaosheng.com
52. SNUFFELPLEK.NL kathy lee
53.Manufacturer kathy lee
54.eanuncia
55.Agroterra kathy0229
56.ANUNCIOS.EDICOSMA.COM
57.Kuvus
58.iAnnonces.tn winter@cn-gaosheng.com
59. anuncioo kathy123 xiang0229love
60.Doplim kathy0229 winter@cn-gaosheng.com
61.Anunci0frezco winter@cn-gaosheng.com
62.maxinfo.es winter@cn-gaosheng.com
63.mundianuncios.net

64.Nuevo Mundoanuncios.es
65.agroads
66.KUGLI winter@cn-gaosheng.com
67.ListRest kathy123 winter@cn-gaosheng.com
68.Adpost.com kathy0229
69.4FreeAd
70.BESTFREEADS
71.FREELISTA kathy123 winter@cn-gaosheng.com
72.agroterra kathy0229 ���� cevudummka winter@cn-gaosheng.com
73.Ad-Mart Classifieds! Login : 2748349433@qq.com Password : xiang0229love
74.Auland kathy
75.DARMOWE OGLOSZENIA winter@cn-gaosheng.com 31661f
76.Aucland kathy
77 intramarkt ���� EifK0srvC
78.HrvatskiOglasi.com
79.nelocalion.com
80.tercera-mano.com
81.anuncol.com
82.ExpreeBusinessDirectory
83.PULSA AQUI PARA PONER TU ANUNCIO
84.Verkopen.nl winter@cn-gaosheng.com br2ch6w8
85.FARMINGO.com Kathy 7148668
86.ABCD classifieds
87.Travel Nurse Housing kathy0229
88.Auto Classifieds kathy0229
89.Australia Free Classifieds kathy0229
90.Seeeer Time kathy0229 ���� 379529
91.Soriba.org kathy0229
92.AVISOMETRO.COM winter@cn-gaosheng.com ���� sjgtcdejqsqn
93.reklaa kathy0229
94.Jeju e-JeJutrade kathy0229
95.Marktco.de kathy0229
96.rganic Market CLASSIFIEDS kathy0229
97.Tweedehands.net winter@cn-gaosheng.com 9094
98.www.usedhaiti.com kathy0229 winter@cn-gaosheng.com
****

Blogger www.blogger.com winter@cn-gaosheng.com

Pinterest kathy winter@cn-gaosheng.com

WhatsApp

��ц��д��

1.
our company manufacture and export high quality Research chemicals with good price .if you need ,pls contact me .email winter@cn-gaosheng.com Skype: kathy0229@outlook.com
Our best selling lines :BK-2C-B 2-NMC 4-CEC BK-2C-B FUB-AMB TH-PVP 4mpd NM-2201 MMBC 5-methylethylone U-47700 5-APB MEX 5F-PCN MED BK-EBDP 2-NMC(crystal or powder) 4-CPRC (crystal or powder) 4-EMC 4F-PHP 4F-PV8(crystal) 5F-PV8(crystal) 5f-mn-24 FAN-144 EG-18 MDPHP ADRAFINIL(crystal or powder) Dibutylone THJ-018 5FSDB005 5FNPB22 FUBPB22
If you need any ,pls email me : winter@cn-gaosheng.com Skype: kathy0229@outlook.com

2.[illegible]д

Best-selling NM2201 and MMBC above 99% purity ,and get very good evaluation from our customers

4-CMC ,BK-2C-B, U-47700,TH-PVP , NM-2201, 5F-PCN ,MMBC for sale

2-Fa ,4-CMC ,BK-2C-B, BK-EBDP ,EG-018, NM-2201 and 5F-PCN MMBC for sale
BK-2C-B,NM-2201, MMBC,BK-EBDP,4-EMC 4F-PHP 4-CEC,5F- PV8 for sale

High Purity Methylone,4-EMC,MDMA,MDPV, BK-EBDP,BK-2C-B ,jwh018 ,5-Meo-Dalt for sale

Buy high quality Mdma,JWH-018,JWH-250,2ci,2CP,2CE,2CB, 2CD,5-Meo-DMT,4-Aco-DMT,4MMC,ketamine

Buy 4-CMC ,BK-2C-B, U-47700,TH-PVP , NM-2201, 5F-PCN ,MMBC,4-EMC 4F-PHP 4-CEC,Mdma,JWH-018,4MMC,ketamine

U-47700, HEX-EN, FUB-AMB,ADB-fubinaca,ethyl ,hexedrone, Fentanyl

BUY U47700,MDPV, MDMA,BK-EBDP, ALPRAZALOM,MEXEDRONE,FUBPB22, 5FUR144

Buy MDPV, MAdMA, 3CMC, 4CMC, JWH-018,5-Meo-DMT, 4cl-PVP, U-47700, TH-PVP

buy fentanynl, alfa-PVP, amfetaminu 4-MMC, MDPV, Methylone, MDAI, crystal meth, mefedron, stanozolol Online

Buy 5f-pb22,PV8,nm2201,5f-mn-24,5f-akb48,fur144,25i nbome

Buy U47700,MDPV, MDMA,BK-EBDP, Alprazalom,Mexedrone,FUBPB22, 5FUR144 Ketamine, MXE, 4mec, MDAI, mdma, 4MMC, MDPV, methylone

Ketamine HCL ,etizolam-white , acetylfentanyl , flubromazepam , 25c-nbome , 25b-nbome , 5-meo-dalt and other RC s for sale

Buy jwh-018, jwh-073, jwh-122, jwh023, jwh210 chemicals from trusted vendors

Buy U47700,MDPV, MDMA,BK-EBDP,jwh-018, jwh-073, 4MMC, methylone

5F-AKB48, 4-Aco-DMT,5-Meo-DMT,AKB-48F,AH-7921

Ethylone, apvp, aphp, 5-mapb, Ethylphenidate for sale

Alprazolam,Dibutylone, Adrafinil, MMB2201, 4FPHP, 5F-AKB48

BUY MDPV, MADMA, 3CMC, 4CMC, JWH-018,5-MEO-DMT, 4CL-PVP, U-47700, TH-PVP

buy fab144 ,5fur144, ab-pinaca, ab-fubinaca, 4f-apvp, bk

buy Mephedrone, Actavis prometazina, Efedrina cloridrato, meth, LSD, MDMA, MDPV, ketamina HCl,2c-b 2c-c 2c-d 25b nbome 25I-NBOMe

Ketamina, 4mmc, MDMA, MDPV,Dibutylone, Adrafinil, MMB2201, 4FPHP, 5F-AKB48

Buy 5-MeO-DALT, 2-FA, 2-FMA 3.4-DMMC, 3-Meo-PCP, 4-EMC, 4-FMA, 4-FMC

Buy 4-MMC/ Mephedrone, bk-MDMA/Methylone, MDAI, MDPV, 4-MEC

Buy Methylone (BK-MDMA),4-MMC, MDMA, MDPV, Ketamine, 4MEC, 4MMC, MDMA

BUY Mephedrone,mdma,mdpv,methylone,A-pvp,Pentylone,UR-114 For Sale
1.

We provide and export high quality and purity research chemicals in large and small quantities ... our products is as below: Our products are of high purity (above 99%).

BK-2C-B (crystal)
4-CL-PVP
ADRAFINIL (crystal or powder)
DOC25 (white powder)
Dibutylone (crystal)
ADRAFINIL (powder and crystal)
TH-PVP
4-mpd
5F-PCN
BK-EBDP
2-NMC (crystal or powder)
4-CPRC (crystal or powder)
4-EMC
4F-PHP
4F-PV8 (crystal)
5F-PV8 (crystal)
FAN-144
EG-18
MDPHP
THJ-018
5FSDB005
5FNPB22
FUBPB22
FUB-AMB
Methylone
U-47700
Mephedrone
4CMC
BK-2C-B
TH-PVP
4-EMC
4-CPRC (crystal or powder)
2-NMC
NM-2201
5-methylethyl
MMBC
MDPV
5F-PCN
FUB-AMB
BK-EBDP
5f-mn-24
THJ-018
4-CEC (crystal)
4C-PVP
AMB-FUBICANA
ADB-FUBINACA
AB-Chminaca
FAB-144

- We offer discrete and reliable packaging and delivery. -Fast and reliable shipping within 48 hours, using courier service, DHL, EMS, TNT, FEDEX, UPS, those are in stock and we only sell items Above 99%, if you interest, We will quote the best for u. Contact us now for more details.

Email ..... winter@cn-gaosheng.com

Skype ..... kathy0229@outlook.com

Our products are of High purity (above 99%) .
-We offer discreet and Reliable packaging and delivery.-Fast and reliable shipment within 48 hours, using courier service, DHL, EMS, TNT,FEDEX,UPS,those are in stock and we only sell items above 99%,if you interest,we will quote the best for u . Contact us now for more details.Pls email:winter@cn-gaosheng.com skype:kathy0229@outlook.com

I`m sharing my vendor with you now;she is from http://www.cn-gaosheng.com (winter@cn-gaosheng.com) she has good stuff and deliver in time;competitive rates,prompt and nice.This is the best place to look by my judgement.

Hi ,I am Kathy,our company manufacture and export high quality Research chemicals with good price .if you need ,pls contact me .email winter@cn-gaosheng.com Skype: kathy0229@outlook.com

Hi ,I am Kathy,our company manufacture and export high quality Research chemicals with good price .email winter@cn-gaosheng.com

Gaosheng Biotechnology Co., Ltd. is a production and sales LLC (wholly state-owned), specialized in producing and exporting Pharmaceutical Intermediates which located in Shanghai, China. We own six subsidiary and we enjoy tax exemption privileges.
As an ISO 9001:2000 certified manufacturer, we have been awarded the title of "Good Faith Enterprise" by customers for good quality and reasonable price.

1.we have rich experience in this area.

2.The products we provide are high in quality and our best selling lines in the world market.

3.We supply competitive price with top purity ,quality.

4.We have a long business relationship with many countries,such as Unites States.Mexico,United
Kingdom,Russia,Germany,Brazil,Philippines,Belgium,Netherlands,Denmark ect.

If you have any other questions,pls do not hesitate to contact me.My Skype: kathy0229@outlook.com email: winter@cn-gaosheng.com

buy 2-DPMP

Our quality is the best you can find around and we
sell in small/large quantities with guaranteed
discreet delivery in good time.

��3����

Product name:
Application: for lab research
Package: aluminous bag
Production Capacity:10000kg/day
Storage:store in a cool dry place and keep away from direct strong light
Moisture Content:0.25%
Delivery time:1-3days
Port:shanghai
Purity :99%
Transportation: DHL,TNT,FEDEX,UPS.EMS
My Skype: kathy0229@outlook.com email: winter@cn-gaosheng.com

□□ klee9432@gmail.com

□□□□ kathy0229

□

5-MEO-DALT 10□□150□=□

EC21 □□□manleybio □□□ jinruimetal888
tradekey □□□ gaosheng@cn-gaosheng.com □□□ tradekey123
lookchem □□□ gaosheng@cn-gaosheng.com □□□ lookchem

1.TT □□□

Our bank information:

BANK NAME: BANK OF CHINA SHIJIAZHUANG ZHONGSHAN BRANCH

BANK ADDRESS: NO.83 WEST ZHONGSHAN ROAD SHIJIAZHUANG HEBEI CHINA

SWIFT COOD: BKCHCNBJ220

Beneficiary's Account No. : 100979120134

Beneficiary's Name: qingwu wang

2.□□j□□□□□□□□□

The money gram address is as below:
-My first name is Qingwu
-My last name is Wang
-Country:China

3.□□□ч□□□□□□ 13itGxzHdRYSFBcj7H15ns4f8p4B6krDuQ

4.□й□□□□□□□□

6217 8550 0002 4767 014 □□□³□

Hi ,I am Kathy,our company manufacture and export high quality Research chemicals with good price .if you need ,pls contact me .email winter@cn-gaosheng.com Skype: kathy0229@outlook.com

□□□ↄ□□□□□□□□□æ□□□□□□□□□□□□
Our company are legal business in China. And the reputation of our company is very well.Because of we will not cheat our clients,and if we have in stock ,we will not give our customer wrong products,if we do not in stock,we will not give

replacement products or not.So I think you can try our samples to check purity ,you will be satisfied with them .

1.To tell you the truth ,for these samples orders,we really have no money to earn ,we just want to have long-term cooperation partner and develop our reputation.

2.We had been in RC business for many years,our company are legal in China.Because we nerver cheat our customers.and if we have in stock ,we will not give our customer wrong products,if we do not in stock,we will not give replacement products or not.So I think you can try our samples to check purity ,you will be satisfied with them .

3.In order to show our sincerely and we are legal supplier.

Our company name is Gaosheng Biotechnology Co.,Ltd Web: http://www.cn-gaosheng.com

And we also are Premium Supplier on Lookchem and Tradekey,you can search it by our company name.

1.Skype ��ɔ� ��й������8��3��ŵ�� ��Ω������

��й����?��l�п������ɻ���·��ŷ����78��¥2804 116600

����3�� 10 g 4-EMC 100��=� 650������

���� Adam DeBoer
��绰 155-4241-0485
email: ajdeboer@yahoo.ca

2.��ɔ������ Keegan Tomik ���� keegantomik@gmail.com 3��9��ű�� ��й������ ��Ω������

����?������ɼ膊������ɬ���98��1304�� . 150-6189-2317
����3�� U-47700 10g 170��=� 1100������

3.����?ɔ� sales@euchemicals.com 3��9��ű�� TT��� ��ѵ��� UPS UPS No.��1Z4682E00490376560

Ç��Ɯ3�� BK-2C-B 500g USD1000

��

PAUL C
MB ETC / SUIT 4
AV DEL ALBIR 6,
LOCAL 26, 03581,

ALFAS DEL PI,
ALICANTE,
ESPANA

+34 966864100

'

**** ETK No. : FB008011052CN

Ç**IJ**3** 5Meo-Dalt(CAS**9298822-98-4** 10g USD120

**

Rm 1, 3F.-1, No.111, Kunming St., Wanhua Dist, Taipei City 108, Taiwan (ROC)

Addressee: Stacy Chen (Ms.Chen Wen-Sin)
Zip: 10845
Contact Number:+886 984 012 549

5.**** Brian M. ***ô*ɔ* purchasing@rechem.ca 3**15** ***
j* Western Union WU *ỹ*** EUB***ţ*LM912635059CN

Ç**IJ*3 5-Meo-DALT 10g Price:USD120

**
reChem Incorporated
55 King Street West
7th Floor
Kitchener, ON
N2G 4W1
CANADA

Contact:
Mason Tikl
phone: 1-844-732-4361 ext. 700

Ç**IJ**3** 4F-MPH 10g 100*=* UPS No.**1Z4682E00490680712

**********ʰ*¹ ***ˣ***□*****3****Oy* *3 ɔ*28 **
**

**** Mr Emmanuel Valzer

**

UNITED SCIENTIFIC SUPPLIERS
Bloque 2 Apartemento 1-25
Calle los negros 4
Malaga
Spain

29013

*绰: +447528486364

29*ɯɔ***4Й**·***

Emmanuel Valzer
United Chemical Suppliers
46westminster chambers
1 Crosshall street
L1 6DQ
Liverpool
United Kingdom

Phone number: +44 (0) 7528486364

Person: Emmanuel Valzer
postcode: L1 6DQ

���·��� 3**31** **** ETK***ţ*EV947820590CN

7.**□ↄ** **’** support@chemicalstory.com **<***C** RS468479055NL

ↄÇ**
1.****3**ʰ**ↄ**Ç**Я**ₕ**

2.**Ç**ᵽ**ᶣ**3**₡

**
Cronos Invest s.r.o.
U Zvonarky 2536/1h
120 00 Praha
Czech Republic

Phone: 773 027 442
Postal code: 120 00
Contact person: Ivan Platonov

8. ***й******* ajdeboer@yahoo.ca 4**1*Ŵ** 650□*****

й**?**l*п*******ɹ***·**ŷ*****78**¥2804
ʰ 116600 **绰 15542410485 **** Adam DeBoer

10** 5-Methylethylone

12**7** email: dookiekaos@gmail.com

ĵ***ǿↄ** **USD1000

Ç**Ɯ**3**** 500**4CL-PVP

1.250**□ĵ** **Ĵ***** ** **ч** BK **4CEC)

****Colin Bath
**

18 Moore St
Mackay QLD Australia

绰 0432 052 205

2.250□ĵ **ĵ** BK **4CEC)

**Steven Smyth
**
12 Helmsman Drive
Bucasia QLD Australia

绰 0400 246 951

12**11** email: gigibga@abv.bg

ó Ç**Ⅳ3**40**MMBC **10** 5FADB USD280

**: Annabel Gospodinova Yaneva
**:dragovets 7,Plovdiv city ,Bulgaria
ⁿ: 4016
**绰: 0887604517

12**13** email :makeylianero26@gmail.com

9 Ç**Ⅳ3** 100**ADBF **ĩ 350**=**

**:Makeylia Nero
□ UNITED SCIENTIFIC COMPANY
**: 64 Franklin STREET, Apt 2,Paterson NJ, USA.
ⁿ:07524
绰973-460-4265

12**13** **9** Skype :chemicals and co

9 250** 5F-PCN **j** 800**=**

**:john woo
□Agilent Technologies, Inc
**:431 Johnson. St canton, ms ,39046,USA

绰+1646-470-8359

12**14** **<** email:gerritbundy@tutanota.com

Ç**Ⅳ3** USD700

4CEC 50gram Price:USD200
5F-PCN 50gram Price:USD300
5-methylethylone 50gram Price:USD200

**Eva Bun
**Kleine Havensteeg 15

1621AZ Hoorn
The Netherlands

12��20�� ������ɔ� email: stuben@citromail.hu

������ɔ� Ç�Ŋ�3��1�����BK-EBDP

�ɔ�Ç�� 1.��ʻ3���д���ʻ3

Name:Vajnar��k Istv��n
address: Sz��chenyi ��t 1,Romh��ny,Hungary
postcode: 2654
Tel. 06304578496

12��22�� ���9�ɔ� ���¼���100��ADBF ���壬ɔ��Θ��ȷ�ADBF
��ĩ��ï��□ᵹ�ɔ ���Ç���ǻʒ�ɬ����ɬ��ɦ�ƚ�ADBF
��ĩ�����ρ�����ADBF ��ɬ��ĩ

name: Jason English
company�� UNITED SCIENTIFIC COMPANY
address: 64 Franklin STREET, Apt 2,Paterson NJ, USA.
postcode:07524
tellphone��973-460-4265

12��30��

�9�ɔ� 100��5FPCN

����: Mike Roberts
��□��Agilent Technologies, Inc
��Nicholasville 353 Imperial pointe��KY,USA

�绰��+1646-470-8359

2017�� 1��7��

����ɔ����� 1����4CEC ��ɬ��5����1ME ��ɬ�����ĩ
ӐЙ����USD2600

2379=229+2150 44229�=�

��ɦ��ǣ

800��5me LK752329944HK

��: urbis 04, caminho 18 - casa 20��Brazil�� Bahia
����: Juliana Lemos Galv?o
ᵑ: 44574305
□��: 06144666524
绰: 75 82752549

****æ**

1**** 4CEC ***EUB***ţ*LK752329944HK

**Av acm, N-259 **Brasil, Bahia
**** Daniela Pereira read.

□*ţ*436.089.495-34
*綽: 75991038933

2017** 1**14**

*9*ɔ****** Ç*ЏЗ**250**5F-PCN

******Θ*ƿ*ɔ***150*ˣ****400**5F-PCN

****: Mike Roberts
Nicholasville 353 Imperial pointeKY,USA

*綽**+1646-470-8359

1**16**

*Ĵ****ǿɔ****** Ç*ЏЗ** 500**4CEC ** 500**4F-PHP

***ĸ*

1.250gms 4CEC

****D Window
Unit 6/43 Off Lane Gladstone Queensland 4680**Australia
*綽**0439 558 745

2.250gms 4CEC

****M Dizza
18 Moore St Mackay Queensland 4740**Australia
*綽**0429 257 231

3.250** 4F-PHP

****G Janz
PO Box 1017 Cooktown Queensland 4895**Australia
*綽**0474 310 001

4.250** 4F-PHP

****W Bell
83 Goldsmith St Mackay Queensland 4740**Australia
*綽**0435 202 201

*µ*ɦ*□* µ****

2017��2��6��

����ʰ�ɔ Ç�Ш3� 1����FUB-AMB $USD1500

�ɔ�Ç����Ʊ �ɔ�Ç����EMS ����

����ʰ�ɔ�Ç����1����FUB-AMB ��EMS ����

�ɔ��æ

[illegible]: Homedeliveries.eu
[illegible]:Lisseweegsvaartje 230[illegible]8380 Lissewege[illegible]Belgium

[illegible]0544943723
jє[illegible] :Christelle Paerewyck
[illegible]: +32499701786

2[illegible]8[illegible]

200[illegible]=[illegible]

[illegible]æ

Recipient[illegible]Stacy Chen
Address[illegible]3F,-11,No.111,kumming St[illegible]Dist[illegible]Taipei City 108,Taiwan(ROC)
Company:ChinaPictograms E In Cs
Phone[illegible]+88623322178

1.DZ[illegible]medleylab@outlook.in SKYPE: live:medlelab ʒ[illegible]ʂɔ[illegible]
2.DZ[illegible]skype: waty.euro [illegible]v[illegible]
3.DZ[illegible]skype: royal.phamacy [illegible]9[illegible]ô[illegible]

a-pvp [illegible]3[illegible] thpvp 4-mpd 4cpvp [illegible]õ[illegible]3[illegible] 4c-pvp
MDPV [illegible]3[illegible] 4-emc 4cec BK-EBDP

2-FMA [illegible]3[illegible] fubamb
4FA [illegible]3[illegible] fubamb 5F-PCN (3000[illegible]=[illegible] 5F-PCN[illegible]fubambÇ[illegible]

3cmc, 4cmc[illegible]3[illegible]4CEC

3mmc,4mmc [illegible]4emc [illegible]

4mmc[illegible]4emc[illegible]

MDPV [illegible]4EMC [illegible]

6-apb [illegible] adb-fubinaca [illegible]

mephedrone

buyrconlineusa@gmail.com

1.Now the psychedelics,we have 3MEo-pcp ,which is very best-selling .

2.The best-selling Cannabis products :5F-PCN,MMBC,NM-2201,FUB-AMB,5FADB,ADBF

3.The best-selling Stimulants products: 4CL-PVP,4-CEC,4F-PHP,4EMC,4-MPD,2NMC,4-CPRC, 5-methylethylone,HEX,MEXEDRONE,BK-EBDP,A-PPP,Dibutylone

4.The best-selling Stabilization products: U47700 and U49900

□□□□□j□□□□□□□□ł□ □□□□ !□□9□□□ô□□□□□□□□Ñ□□

Hi ,I am Kathy,our company manufacture and export high quality Research chemicals with good price .if you need ,pls contact me .email winter@cn-gaosheng.com Skype: kathy0229@outlook.com

Ethylphenidate
Diclazepam
Etizolam
flubromazepam
Pyrazolam
Methoxphenidine (MXP)
5-EAPB
5-iai
Diphenidine
5-Meo-Dalt
Amt
BK-2C-B
Methiopropamine (Mpa)
Mdai
All Cannabinoids
BB-22
5F-PB22
5F-AKB48
STS-135
2C-C
2C-E
2C-P
2C-T-4
4-FMC
6-APB
AM2201
benzo
Flubromazepam
Methoxetamine
MPA
Pentedrone
Pentylone
research chemical
researchchemicaldealer.com
review
sale
Uncategorized
vendor

Buy methamphetamine,
Buy speedpaste,
Buy amphetamine online with 100% satisfaction,
Buy amphetamine with 100% safe delivery,
Buy Mephedrone (4-mmc),
Buy Methylone (bk-MDMA),
Buy MDAI,

Buy 4-MEC,
Buy MDPV,
Buy 4-MeO-PCP,
Buy 4-Methyl-aET,
Buy 5-IAI,
Buy 5-MeO-DALT,
Buy 5-MeO-MiPT,
Buy the AM series,
Buy the JWH series,
Buy Methoxetamine,
Buy Morphine,
Buy Naphyrone,
Buy NRG-2,
Buy O-Desmethyltramadol,
Buy Pentedrone,
Buy DOC,
Buy DOI,
Buy Pentylone,
Buy Phenazepam,
Buy RCS-4 (BTM-4),
Buy oxycodone powder,
Buy Sildenafil,
Buy UR-144,
Buy URB597,
Buy Ketamine,
Buy 2-FMA,
Buy 3-FMC,
Buy 3,4-DMMC,
Buy 25I-NBOMe,
Buy 4-CAB,
Buy 4-FA,
Buy 4FMP,
Buy 4-FMA,
Buy 4-MBC,
Buy 4-MEC,
Buy 5-IAI,
Buy PB22,
Buy AB-FUBINACA,
Buy CP 47497,
Buy CP-55940,
Buy HU-210,
Buy HU-331,
Buy Ephedrine Hcl Powder,
Buy Cocain,
Buy Herion,. 9%)

Kaufen Amphetamin

kaufen Geschwindigkeit

Kaufen Meth Kristall

kaufen Methamphetamin

kaufen Speedpaste

Kaufen Amphetamin online mit 100% Zufriedenheits

Kaufen Amphetamin mit 100% sichere Lieferung

Kaufen Mephedron (4-MMC)

kaufen MDAI

Kaufen Sie 4-MEC

kaufen MDPV

Kaufen Sie 4-MeO-PCP

Kaufen 4-Methyl-AET

Kaufen Sie 5-IAI

Kaufen Sie 5-MeO-DALT

Kaufen Sie 5-MeO-MiPT

Kaufen Sie die AM-Serie

Kaufen Sie das JWH-Serie

kaufen Methoxetamine

kaufen Morphine

kaufen Neinphyreinufe

Kaufen NRG-2

Kaufen O-Desmethyltramadol

kaufen Pentedrone

kaufen DOC

kaufen DOI

kaufen Pentylone

Kaufen RCS-4 (BTM-4)

Kaufen Oxycodon Pulver

Kaufen Sildenafil

Kaufen UR-144

kaufen URB597

kaufen Ketamin

Kaufen Sie 2-FMA

Kaufen Sie 3-FMC

Kaufen 3,4-DMMC

Kaufen 25I-NBOMe

Kaufen Sie 4-CAB

Kaufen Sie 4-FA

kaufen 4fmp

Kaufen 4-FMA

Kaufen 4-MBC

Kaufen Sie 4-MEC

Kaufen Sie 5-IAI

kaufen PB22

Kaufen AB-FUBINACA

Kaufen Sie CP 47497

Kaufen Sie CP-55940

Kaufen HU-210

Kaufen HU-331

Kaufen Ephedrine Hcl Powder

kaufen Cocain

COCAINE,KETAMINE,MEPHEDRONE,JWH,MDA,MAM220,MDPV,KETAMINE:We offer products such as Ethyl-Ketamine, UR-144, 5FUR-144, 3-FMC,Methoxetamine, MDAI, 6-APB, 4-FA, MDAI, MDPV, 3-FMC, Methylone,Flephedrone, JWH-250, JWH-018, JWH-073, JWH-210 , JWH-122, 3,4-DMMC,and 4-MEC, Pentedrone, AKB48, 6-APDB, UR-144, Etizolam, STS-135,Methoxetamine, AB-001, 5-meo-mipt, A-PVP, MPPP, AM-2201, MAM-2201 andRCS-4

1P-LSD, 2-AI,
2NE1 + APICA,
3,4-CTMP,
3-FPM, 3-MMC
4-FA,
4-MEC,
5-APB,
5-EAPB,
5-Mapb,
5-MeO-DALT
5-MeO-DIBF,
5F-AKB-48,
5F-PB22,
6-APB,
6-APDB,
A-PVP
AB-CHMINACA,
AB-FUBINACA,
AB-FUBINACA,
Acetildenafil
AL-LAD (NEW),
AM-1220,
AM-2201,
AM-2233
AMT,
BB-22 + QUCHIC
BK-2C-B, Blase Bud,
C-Liquids, Clonazolam,
DeschloroEtizolam
Diclazepam,
Diphenidine,
Ephenidine,
Ethylphenidat
Etizolam, Evoke,
Flubromazepam,
Flubromazolam,

Funky Buddha
Funky Buddha Silber,
Isopropylphenidate,
M & Ms
MAM-2201
Marleys Magie, MDAI (NEU)
MDPV
Methiopropamin
Methoxetamine
Methoxphenidine
Methylone
Metizolam
Mexedrone (NEU)
Modafiendz
MPA & 5MD
Nifoxipam
NM-2201
NM-2AI
pentedron
Phenzacaine
Pyrazolam
Sky High
Smokey
Smokey X
STS-135
Synthacaine
THJ-018
THJ-2201
UR-144

Buy research chemical online
Buy a-PVP Online
Buy MDPV online
Buy crystal meth online
Actavis promethazine with codeine cough syrup
5F-AKB48
5fur 144 for sale
Buy 4-MEC online
Buy a-PVP Online
BUY AB-CHMINACA ONLINE
BUY AB-PINACA ONLINE

NM-2201 buy
buy NM-2201
buy online NM-2201
online buy NM-2201
buy online NM-2201 usa
Buy AH-7921 online
BUY AM-2201 ONLINE
Buy Diazepam Online
Buy Dibutylone Crystal online.
Buy Hydrocodone Watson 540 online ?C 10/500mg
Buy Hydrocodone Watson 853 online
Buy Methoxetamine online.
Buy Methylone Crystals online
Buy Molly MDMA Pills (Pure MDMA)
Buy Pentedrone online
Buy Pure 2-FMA for sale online
Buy Pure 25 I-NBOMe online
Buy Pure Ketamine-Racemic online
Buy pure MDMA online
Buy RoxiCodone 30mg Online ?C Generic
Buy Soma 350mg Online
Buy Vicodin ES online

Buy PB-22 online

ALD-52
1P-LSD
AL-LAD
ETH-LAD
1P-ETH-LAD
2C-B-FLY
4-substituted tryptamines
N,N-dialkyl tryptamines

0
Pass(-)
Available research Chemicals and anabolic steroids Online

AM 2201, Phenazepam, Methoxetamine, jwh-019, jwh-073, jwh-081,

jwh-122, jwh-210, jwh-250, Rcs-4,

jwh 203,

Mephedrone,

2c-e, 2c-d, 2c-i, 2c-t-2, 2c-p, 2c-c, 3,4-dmmc, 5-IAI,

5-Meo-DMT,

5-Meo-AMT ,

5-Meo-MIPT ,

4-Aco-DM

Apvp

5-MAPB.hcl Powder

Buy MDAI

Buy Ethylphenidate Powder

Buy 5F-AKB48 Power

Buy N-Ethyl-Ketamine

Buy AM-2201 Powder

Buy UR-144 Powder

Incense Blends

Buy Mad Hatter Incense

Buy Purple Haze Incense

Buy 2-AI

AM-2201 Buds (Incense Blend)

Buy Ethylphenidate Crystals

Buy 5-IT

Buy Methiopropamine (MPA)

Buy Etaqualone

Buy UR-144 Incense Blend

Buy 5-MeO-DALT

Buy 2-MeO-Ketamine

Etizolam

Etizolam 1mg

Etizolam 2mg

Buy 6-APB

Buy 6-APB Powder

Buy BenzoFury / 6-APB Pellets

Buy AMT Alpha-MethylTryptamine

Synthacaine

THCP - Blend

inSense Blend

Buy 5-APDI (IAP)

AM 2201, Phenazepam, Methoxetamine, jwh-019, jwh-073, jwh-081,

jwh-122, jwh-210, jwh-250, Rcs-4,

jwh 203,

Mephedrone,

2c-e, 2c-d, 2c-i, 2c-t-2, 2c-p, 2c-c, 3,4-dmmc, 5-IAI,

5-Meo-DMT,

5-Meo-AMT ,

5-Meo-MIPT ,

4-Aco-DM

Methoxphenidine / MXP

3F-Phenmetrazine / 3-FMP

Methiopropamine / MPA

Etizest Etizolam Pellets

Intas Etizolam Pellets

Clonazolam Pellets 0.5MG

Flubromazepam Pellets 4MG

Diclazepam Pellets 2MG

Nifoxipam 0.5MG

Pyrazolam Pellets 0.5MG

6-APB HCL

2-AI

5-EAPB Powder

Etaqualone

Ethylphenidate

Methiopropamine

MDAI

Pyrazolam

Tryptamines

5-Meo-Dalt

AMT

Cannabinoids

5F-AKB-48 Powder

5F-PB22 Powder

STS-135 Powder

Herbal Potpourri

5F-AKB-48 Herbal Potpourri

5F-PB22 Herbal Potpourri

STS-135 Herbal Potpourri

Lab Equipment

Safety

Analytical

Scales and Balances

Peptides

GW-501516

Advance Customers

3,4-CTMP

AH-7921

Etizolam Powder

Flubromazepam Powder

EXHIBIT 111

(https://msadvisory.com)

China's Special Economic Zones (SEZ)

Dream Zhou | December 21, 2022

Request a consultation

(/contact/)

Share this article

The rise of the Chinese economy began more than four decades ago, and one of the main drivers of the country's unprecedented growth is the establishment of special economic zones (SEZs). Established as a way to experiment and promote economic reform, SEZs opened the country to new possibilities and laid the foundations for a strong market that remains competitive even today.

Here, we explore how foreign companies expanding or starting a business in China (https://msadvisory.com/resource/doing-business-in-china/) can take advantage of Special Economic Zones.

Understanding Special Economic Zones in China

A special economic zone (SEZ) has unique characteristics that make it more viable for conducting business. Commercial zones are geographically delimited and physically secured areas managed by a single administration and subject to its regulations. Organizations operating within the zone enjoy various benefits, often including a separate customs area designated for international transactions, tax incentives, and access to infrastructure.

In China, SEZs cover larger geographical areas (https://www.gov.cn/fuwu/2017-04/06/content_5183700.htm) than other economic zones. Seven major SEZs are located in the cities of Shenzhen, Xiamen, Hainan, Zhuhai, and Shantou, as well as in city districts, including the Pudong New Area of Shanghai and the Binhai New Area in Tianjin.

The first four SEZs were established in the 1980s in Shenzhen, Zhuhai, and Shantou in Guangdong Province and Xiamen in Fujian Province.
(https://msadvisory.com)

These economic zones were established to enhance economic development and support the country's recovery from the decade-long Cultural Revolution. These SEZs enjoyed special financial, trade, and investment privileges and additional benefits from open economic policies.

There are now several types of SEZs in China focusing on a range of industries, including high-tech industrial development zones (HIDZs), free trade zones (FTZs) (https://msadvisory.com/china-free-trade-zones/), and export-processing zones (EPZs).

High-Tech Industrial Development Zones: Driving Innovation

The main objective behind HIDZs is to utilize enterprises' technological capacity to create high-tech products, which can expedite the commercialization of the special zones. After decades of development, HIDZs have become the pillar of industrial improvements and scientific innovations in the country.

Free Trade Zones: Boosting Foreign Trade and Investment

FTZs were established so that China could experiment with opening its country to foreign investments before participating in the World Trade Organization. These zones bypass China's customs regulations and are designed to boost foreign trade, export processing, and logistics.

Export-Processing Zones

EPZs aim to improve foreign exchange earnings and further develop export-oriented industries. EPZs are similar to FTZs, except they are solely built to manage export processing.

How SEZs Propel China's Economic Growth

SEZs served as China's testing ground to determine its attractiveness to foreign trade and investments. The economic move proved successful, and China later opened its market by creating more SEZ variants.

The first SEZs later became models for the rest of the country. By the early 1990s, the concept of opening the Chinese market to foreign investments through SEZs became so successful that the government decided to expand towards the entire coastal region, capital cities, and autonomous regions.

Specifically, SEZs have since contributed significantly to the country's GDP, given its influence on employment and exports. In 2021, SEZs contributed 22% to the national GDP, 45% of the total foreign investments entering the country, and 60% of exports. Additionally, they created or estimated 30 million jobs for local employees.

(https://msadvisory.com)

(https://msadvisory.com/china-market-entry/)

Challenges and Disadvantages of SEZs

While China's SEZs are viewed as a major success story from outside the country, their establishment also has notable disadvantages.

Land Acquisition Issues

SEZs require the acquisition of large areas of land at very low prices. Since the local and national governments have permitted them, the acquisition process is susceptible to abuse, with buyers getting large and, at times, unfair discounts.

Impact on Livelihoods and Employment

In the case of SEZs built on agricultural land, farmers often sacrifice their livelihoods and are forced to relocate. In many instances, they are not skilled enough to work in the newly built SEZs, which pressures them to seek employment opportunities elsewhere.

Advantages of SEZs for Foreign Investors

Chinese SEZs are designed to attract foreign investors by offering substantial tax incentives, more relaxed policies, and legislative protection to ensure that they can maximize their business operations. Here are some of the advantages that foreign investors can get from SEZs:

Tax Incentives

(https://msadvisory.com)

Income tax is reduced to 15%, compared to the percentages imposed in other areas in China.
Corporate taxes can be reduced or eliminated if a company becomes profitable after a series of losses. Depending on the circumstances, this can be done for up to five years.
Specific industries have local tax exemptions.
Foreign-invested enterprises in open coastal cities, SEZs, and specific urban areas can enjoy a corporate income tax reduction of up to 24%.

For more information on tax rates, please read our full article on tax rates in China (https://msadvisory.com/china-tax-rates/).

Economic Policies

Duty-free export on certain items.
Lower import tariffs.

Establishing a Foreign Company in China

Foreign companies can set up a local subsidiary through a joint venture with a local company. Although some policies differ by area, they all favor companies based or operating in the SEZs.

Locations of Special Economic Zones in China

(https://msadvisory.com)

Here is a list of the SEZs in China, including Free-Trade Zones, state-level new areas, and open coastal cities: