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Meth Precursor Chemicals from China: Implications for the United States

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Executive Summary

During the last 15 years, methamphetamine (meth) abuse in the United States has skyrocketed, necessitating new policies to reduce meth production. To limit the drug's use, regulations were introduced in the mid-2000s limiting access to cold and cough medicines containing chemicals like ephedrine and pseudoephedrine—also known as "precursor" methamphetamine chemicals—used to produce meth. Nevertheless, meth seizures and abuse have continued to increase, with Mexican drug organizations replacing domestic producers as the main manufacturers and distributors of meth in the United States.

While Mexican cartels produce the majority (around 90 percent) of meth used in the United States, around 80 percent of precursor chemicals used in Mexican meth come from China. Precursor chemicals are increasingly being shipped from China to Mexico, where they are manufactured into meth, transported across the southern border of the United States, and brought into southwestern states—Texas, Arizona, and California—before being shipped across the country. A period of increased cooperation between the U.S. and Mexican governments in the late 2000s and early 2010s has done little to reduce the precursor flows, with Chinese drug traffickers circumventing counternarcotic authorities by shipping chemicals to poorly regulated Central American ports before transporting them to Mexico.

As China has become a global source of precursor chemicals, reports of meth abuse and meth lab incidents in China have also become more frequent. To combat rising meth use among Chinese citizens, large-scale drug busts have become more common during the last few years, particularly in coastal cities and towns. In addition, Beijing has introduced new drug regulations and enhanced cooperation with international counternarcotic organizations. Despite these efforts, China remains one of the largest global producers of meth precursor chemicals.

China is home to the world's second-largest pharmaceutical industry by revenue, producing and exporting vast quantities of generic drugs and active pharmaceutical ingredients (APIs) used to manufacture legal and illegal drug products. Coupled with the country's large domestic consumer market, the scale of Chinese API production has led to lower costs for chemical production, which in turn has made China the world's leading exporter of APIs. In addition, Chinese nonpharmaceutical chemical companies ship more than one-third of the world's chemicals, making it the world's largest chemical producer and exporter. The U.S. Department of State estimates that nationwide, China has more than 160,000 chemical companies operating legally and illegally, with facilities manufacturing tons of precursor chemicals every week.

Ultimately, Chinese manufacturers of meth precursors have thrived because the country's vast chemical and pharmaceutical industries are weakly regulated and poorly monitored. China's drug and chemical regulators are unable to adequately inspect the country's chemical producers, and online chemical sales have made it easy for drug producers to avoid detection. Furthermore, nonpharmaceutical chemical facilities have been poorly monitored, allowing producers to easily circumvent inspection requirements. The lack of regulations has led to an increasing number of unlicensed chemical companies—and, through them, effectively unlicensed pharmaceutical companies—producing illegal chemicals, making it easy for drug traffickers to gain access to precursors. Corrupt government officials also undermine China's chemical regulations, with local regulators bribed to overlook illegal chemical production.

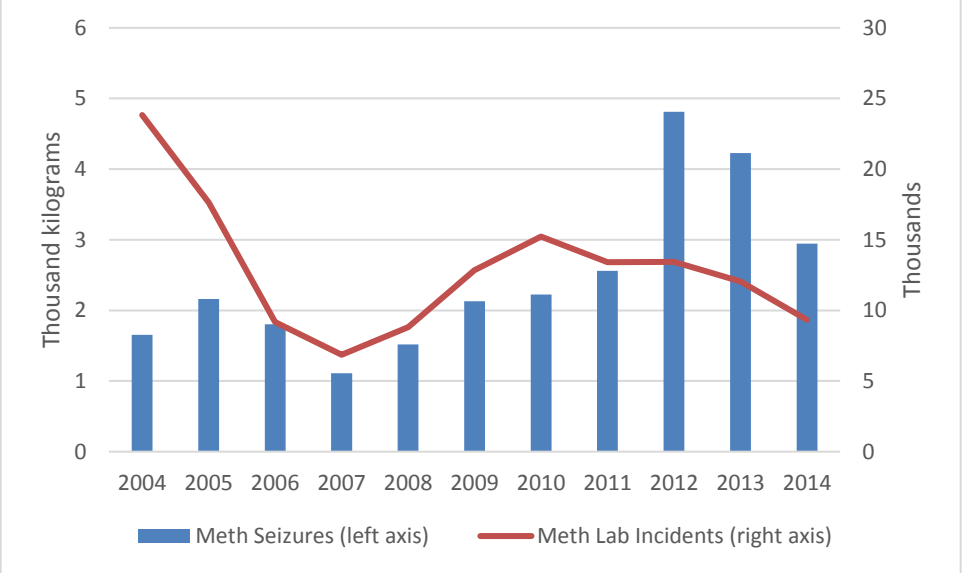
To reduce precursor chemical flows, the United States and the international community at large are working with China through an array of international and bilateral mechanisms, forming government working groups, establishing international drug tracking systems, and strengthening international precursor regulations. Yet, international laws governing chemical trade remain insufficient and are easily circumvented. There are numerous ways precursor exports can be hidden from regulators, including mislabeling chemical shipments, modifying illegal chemicals, and shipping legal pre-precursor chemicals, or the chemicals used to create precursors.

History of Meth Use in the United States

Despite crackdowns on ingredients necessary for meth production, meth abuse in the United States continues to grow.[1] Meth is a powerful, highly addictive Schedule II stimulant—meaning it is legally available only through a nonrefillable prescription—that drug users ingest, snort, smoke, or inject for recreational use.[2] Meth use increased steadily throughout the 1990s and early 2000s, with approximately 5 percent of the U.S. population ages 12 and older having used meth in their lifetime in 2004, up from 2 percent in 1994.[3] In 2004, nearly 24,000 meth laboratory incidents—instances where meth lab equipment or dumpsites were confiscated by authorities—were reported in the United States, an all-time high.[4] The drug's growing prominence necessitated new policies limiting access to meth precursor chemicals—like ephedrine and pseudoephedrine—found in cold and cough medicines that can be used to produce meth (for a full list of U.S. controlled precursor chemicals, see Appendix I, "Controlled Chemicals in the United States").[5]

To reduce the availability of precursor chemicals, Congress enacted the U.S. Combat Methamphetamine Epidemic Act of 2005, setting sales limits for products containing precursor chemicals and requiring these products be sold behind the counter and entered into a national log.[6] In 2007, a full year after the Combat Methamphetamine Epidemic Act was implemented, the number of meth lab incidents decreased by 71 percent, and meth seizures declined by 33 percent (see Figure 1).[7] In the following years, however, meth seizures increased, rising 78 percent between 2004 and 2014, even as the number of meth labs in the United States has declined by 61 percent over the same period.[8] Although meth seizures declined 30 percent year-on-year in 2014, the U.S. Department of State's *2016 International Narcotics Control Strategy Report* (INCSR) indicates meth trafficking to the United States spiked again in 2015 (although official 2015 trafficking data are not available), which typically leads to a surge in domestic meth seizures.[9]

Figure 1: Meth Activity in the United States, 2004–2014



Note: Data for 2014 are preliminary and subject to updating.
Source: U.S. Drug Enforcement Administration, *Statistics and Facts*. *http://www.dea.gov/resource-center/statistics.shtml*.

The *2015 National Drug Threat Assessment Summary* by the U.S. Drug Enforcement Administration (DEA) concludes that while regulations on meth precursor chemicals have led to reduced U.S. meth production, increased availability of Mexico-produced meth has made Mexican drug organizations the primary manufacturers and distributors of meth in the United States.[10] Domestic meth labs continue to produce and distribute meth in the United States, but they operate on a much smaller scale compared to meth makers in Mexico, where the product is far cheaper and purer.[11] Lawrence Payne, a spokesman for the DEA, said "the days of the large-scale U.S. meth labs are pretty much gone," with Mexico "tak[ing] over production south of the border and distribution into the United States."[12] Increased meth seizures at the U.S.-Mexico border over the last few years appear to support Mr. Payne's

assessment: the U.S. Border Patrol reported meth seizures along the southern border increased from less than 0.5 kilograms (kg) in 2005 to nearly 773 kg in 2011; authorities in San Diego also saw a 43 percent increase in meth seizures between 2013 and 2014.[13] According to the DEA, meth shipments of 20 kg or more are regularly seized at the southwestern U.S. border.[14]

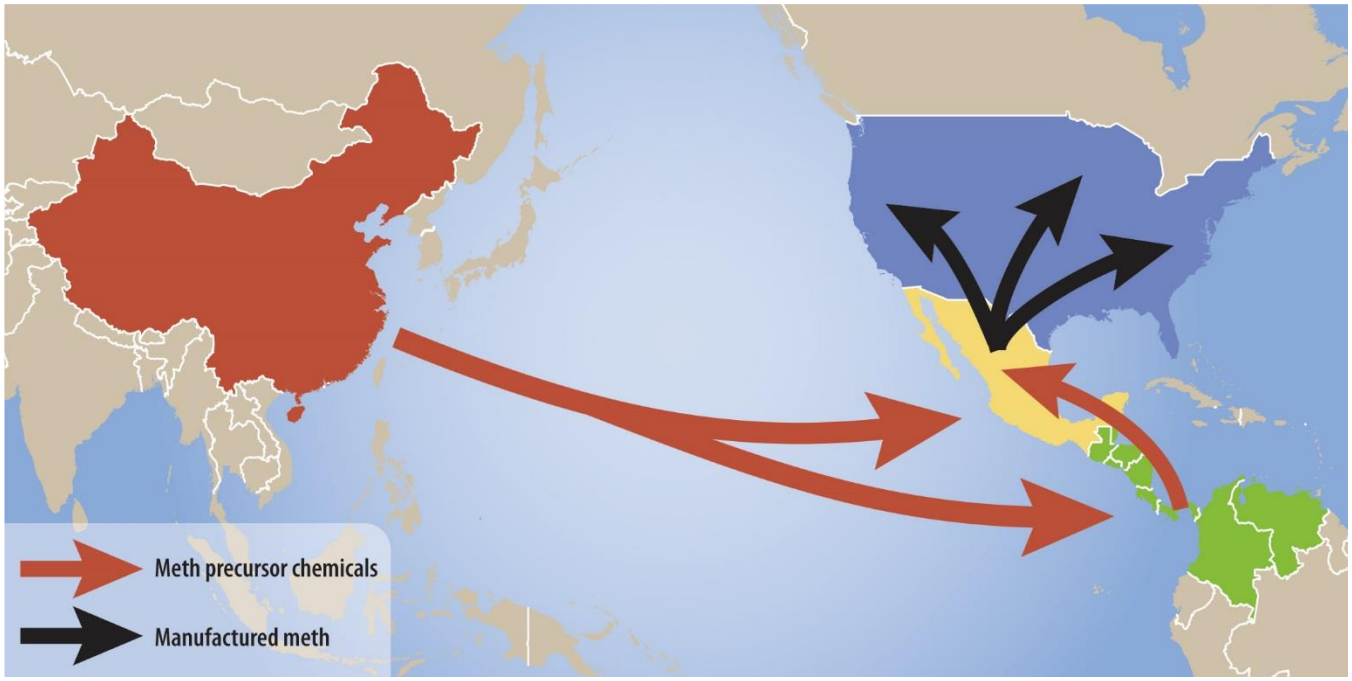
Precursor Chemical Flows from China

While Mexican cartels produce the majority of meth used in the United States, China is the main source of meth precursor chemicals: according to the DEA, Mexico produces around 90 percent of the meth found in the United States, and 80 percent of precursor chemicals used in Mexican meth come from China.[15] In the 2014 INCSR, the U.S. Department of State indicated criminal syndicates in China were redirecting legal chemical shipments for illegal use, with "most precursor chemicals seized in Mexico and Central America destined for illegal production of meth … legally exported from China and diverted en route."[16] These claims were restated in the 2016 INCSR, which indicated China remains one of the world's top producers and exporters of precursor chemicals.[17] Undetected illegal precursor chemicals shipped from China are made into meth and transported to the U.S.-Mexico border, crossing over the southern border of the United States into southwestern states—Texas, Arizona, and California—before being shipped across the country.[18]

Despite introducing more stringent regulations on precursor chemicals, Mexico remains a chief transit point for illicit Chinese chemicals.[19] During an interview with the Hong Kong-based newspaper *South China Morning Post* in 2014, Jorge Guajardo, Mexico's ambassador to China from 2007 to 2013, described Chinese meth precursor exports to Mexico as "the number one issue [he] had to address" in his time as ambassador.[20] In 2008, new regulations went into effect limiting sales of cold medicines and other legal products containing ephedrine and pseudoephedrine in Mexico.[21] Despite these precautions, precursor flows into Mexico continue to increase.[22] Between 2009 and 2011, the volume of meth and precursor chemical seizures in Mexico increased 1,000 percent.[23] Most of the precursor chemicals are suspected to have originated in China.[24] Mexican authorities seized a record 900 tons of precursor chemicals from China in just six weeks in 2012.[25]

With Mexican and U.S. officials cracking down on precursor imports, Chinese chemical exporters are taking additional steps to ensure precursor shipments arrive undetected. Chinese triads—organized crime syndicates operating throughout Asia and beyond—have increased their cooperation with Mexican criminal organizations and are now the main suppliers of precursor chemicals to Mexico.[26] The triads work in conjunction with Mexican drug cartels, including the Sinaloa and Knights Templar cartels, to produce and transport chemicals and bypass laws and import regulations.[27] Chinese drug traffickers also undermine Mexico's anti-precursor regulations by transporting chemicals into Central American countries, which are vulnerable to narcotics trafficking due to their remoteness, limited infrastructure, lack of government presence, and weak law enforcement institutions (see Figure 2).[28] James Bosworth, CEO of the strategic advisory firm Southern Pulse, explained in an interview with Commission staff, "On top of direct covert trafficking into Mexico's Pacific ports, precursor materials from China enter ports in countries like Guatemala, Honduras, El Salvador, and Venezuela before being transported into Mexico by land and sea routes, making them difficult to detect."[29]

Figure 2: How Chinese Meth Precursors Flow to the Western Hemisphere

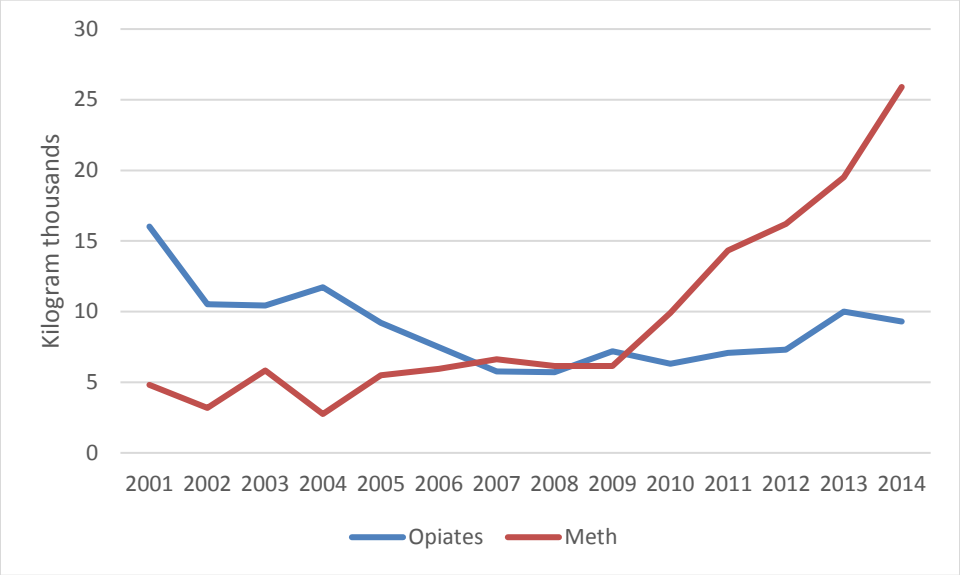


Source: United States Department of State, *2016 International Narcotics Control Strategy Report* (INCSR), March 2016. *http://www.state.gov/documents/organization/253655.pdf*. Created by the U.S.-China Economic and Security Review Commission.

China's Meth Problem

While precursor exports drive a significant portion of China's meth-making market, domestic meth consumption in China has also increased dramatically over the past decade, despite efforts to crack down on producers and users.[30] Ten years ago, China's population of known drug abusers totaled around one million people, with 86 percent of them taking opiates like heroin and opium, while only 14 percent abused meth.[31] A report from China's National Narcotics Control Commission in March 2015 revealed the number of known drug users has tripled since 2005, reaching 2.95 million.[32] Liu Yuejin, the director of the Narcotics Control Bureau at the Ministry of Public Security, has indicated the actual number of drug addicts in China is "estimated at 13 million … and about half are suspected of taking methamphetamine."[33] While the data on drug users in China remain difficult to verify, drug seizure statistics show meth use becoming more prevalent in the last 15 years. In 2001, opiate seizures outpaced all other drug seizures in China, with authorities seizing 16,000 kg of opiate drugs compared to 4,820 kg of meth.[34] By 2014, however, meth seizures had increased by 437 percent, with nearly 26,000 kg seized, while heroin seizures had declined by 42 percent to 9,300 kg (see Figure 3).[35]

Figure 3: Annual Drug Seizures in China, 2001–2014



Source: Sheldon X. Zhang and Ko-lin Chin, "A People's War: China's Struggle to Contain Its Illicit Drug Problem," *Brookings Institution*, May 2015, 5; United States Department of State, *2016 International Narcotics Control Strategy Report* (INCSR), March 2016, 131. *http://www.state.gov/documents/organization/253655.pdf*.

Numerous drug busts have occurred in China in the last few years, particularly in coastal provinces. In February 2015, for instance, 2.2 kg of meth were seized and 28 people were arrested for meth production in Guangdong Province.[36] In January 2016, 150 kg of meth and one ton of precursor materials were seized in the city of Panyu, Guangdong.[37] China's largest meth seizure occurred in December 2013 when 3,000 heavily armed police raided Boshe, a small village located on China's southeast coast in Guangdong Province.[38] The town had become one of China's major producers of precursor chemicals and an international drug trafficking channel due to its location and developed sea and land transport infrastructure.[39] During the bust, police reported closing 77 separate meth labs, seizing more than three tons of meth along with 23 tons of precursor chemicals and arresting 182 people.[40] In all, nearly 20 percent of the villagers living in Boshe had been involved in the drug trade in some way, earning as much as ten times more through meth production than they could have as standard fishing or orchard workers.[41]

China has attempted to stem domestic meth production by introducing new drug regulations, more stringently enforcing existing drug laws, and cooperating with international drug combatting efforts. Amendments to China's Criminal Law in 2015, for instance, set explicit punishments for illegally producing and distributing precursor chemicals, including providing new criminal penalties for illegal drug activity.[*] [42] China also rolled out a new electronic precursor control information system aimed at facilitating applications for chemical licenses and enhancing verification procedures for precursor operators and transactions involving precursor chemicals.[43] Most recently, in October 2015 China added 116 synthetic chemicals to the list of controlled chemical substances, including components necessary for the manufacture of synthetic ephedrine and pseudoephedrine.[44] While it is difficult to measure the impact these laws have on drug use and production in the short term, they signal Beijing's awareness of the country's growing drug problem and a willingness to address it.[45]

Police in China have also begun cracking down on the sale and use of meth, with the number of drug-related trials increasing by roughly 80 percent from 2007 to 2011.[46] In 2014, law enforcement officials investigated 145,900 drug trafficking cases resulting in 168,900 drug-related arrests—a 27 percent increase since 2012—and seized 25.9 tons of meth, up 60 percent from 2012.[47] In addition, police seized nearly 4,000 tons of precursor chemicals in 2014, a record 350 percent increase from 2010 levels.[48] In 2015, over one million drug users were arrested in China—a 20

[*] Under the new law, illegal drug producers and distributors will face at least seven years in prison. Zhang Hui, "China's No.1 Drug Village Closely Watched by Police One Year after Crackdown," *Global Times*, January 7, 2016. *http://www.globaltimes.cn/content/962374.shtml*.

percent increase year-on-year—including 776,000 meth users.[49] These efforts have deterred recreational drug activity in the country, yet large-scale meth production continues to increase.[50]

Along with efforts to combat domestic drug use, China has enhanced its cooperation with international counternarcotic organizations. China is an original signatory to the 1988 UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, which provides measures against drug trafficking and the diversion of precursor chemicals.[51] China also maintains bilateral counternarcotic agreements with the UN Office on Drugs and Crime (UNODC), as well as memoranda of understanding with Burma (Myanmar), Cambodia, Laos, Thailand, and Vietnam on narcotic drug control.[52] Through these agreements, China has sought to combat drug crimes more actively, attending various high-level dialogues on drug control and signing on to joint projects cracking down on transnational narcotics-related crimes.[53] In addition, China participates in a variety of international drug conferences and bilateral meetings, including the annual International Drug Enforcement Conference hosted by the DEA.[54] China has also increased its work with multilateral partners through organizations such as the UNODC and the UN Commission on Narcotic Drugs (UNCND)—the UN's primary narcotic drug policy-making body—to control for new chemicals like the 116 illegal synthetic compounds banned in October 2015.[55] However, controlling these 116 synthetic chemicals is unlikely to significantly reduce China's precursor production, with new synthetic chemicals quickly replacing banned ones in circulation.[56]

Scope of China's Pharmaceutical and Chemical Production

Despite efforts to crack down on chemical production and distribution, China's drug problem continues unabated in part because the country's robust chemical and pharmaceutical industries are producing vast legal quantities of meth precursor chemicals.[57] Throughout the last decade, the Chinese government has prioritized pharmaceutical production as a "high value-added industry," providing export tax rebates to producers of pharmaceutical ingredients to boost exports.[58] Today, China's pharmaceutical market—which consists of more than 5,000 pharmaceutical companies producing legal synthetic chemicals and drugs—is the second largest in the world with a revenue of $105 billion in 2014, although it trails far behind the United States' $380 billion pharmaceutical industry.[59] China's market is still growing rapidly, with revenues increasing 15 percent on an annualized basis since 2010 and expected revenues of $200 billion by 2020.[60]

Unlike the United States, which produces costly, high-value pharmaceuticals, China's pharmaceutical industry relies on mass production and export of inexpensive generic drugs and APIs.[61] This explains why China became the largest manufacturer of pharmaceutical ingredients in 2012 (producing around 800,000 tons of APIs) yet still took in revenues equal only to 28 percent of U.S. pharmaceutical industry revenue.[62] Together with the country's large domestic consumer market, the scale of API production in China has facilitated economies of scale that lower costs for chemical production.[63] As a result, China has become the leading global exporter of APIs, with other countries importing pharmaceutical ingredients from China to lower production costs for drugs and medicines.[64] A 2010 study of pharmaceutical executives by the consulting firm Axendia, for example, found 70 percent of respondents cited China as their top country source for pharmaceutical ingredients.[65] Although these shipments are legal, APIs and other noncontrolled pharmaceutical products can still be used for drug and precursor drug production, particularly in cases where the APIs are counterfeit or adulterated during production to make cheaper and more potent products.[*] [66]

In addition, China's numerous nonpharmaceutical chemical companies legally produce massive quantities of meth precursor chemicals every day.[67] China surpassed the United States as the world's largest chemical market in 2009, and by 2014 global chemical shipments from China reached $1.8 billion, or 34 percent of global shipments, compared to a 15 percent share for U.S. chemical shipments.[68] The U.S. Department of State estimates that nationwide, China has more than 160,000 chemical companies operating legally and illegally, with facilities manufacturing tons of precursor chemicals every week.[69] As a result, China has become a leading producer and

[*] For more on drug safety in Chinese pharmaceutical exports, see U.S.-China Economic and Security Review Commission, Chapter 1, Section 3, "China's Health Care Industry, Drug Safety, and Market Access for U.S. Medical Goods and Services," in *2014 Annual Report to Congress*, November 2014, 127–137.

exporter of precursor chemicals:[70] in 2014 (the last year chemical export data are available) China was the world's sixth-largest exporter of ephedrine (2,100 kg) and fifth-largest exporter of pseudoephedrine (65,678 kg).[*] [71]

Regulations Governing Chemical Production in China

In many cases, the precursor chemicals used to produce meth are diverted from legitimate pharmaceutical uses.[72] Preventing the theft and diversion of precursor chemicals necessitates coordination and cooperation among law enforcement, chemical producers, and pharmaceutical retailers.[73] However, China's vast chemical and pharmaceutical industries are weakly regulated and poorly monitored, making it easy for drug traffickers to divert chemicals with legitimate uses in medicine, fertilizer, and pesticides to meth and other synthetic drug production.[74] China controls more than 25 known precursor chemicals—including ephedrine and pseudoephedrine—which should subject these chemicals to strict production, sale, and export licensing requirements (for a full list of Chinese controlled precursor chemicals, see Appendix II, "Controlled Precursor Chemicals in China").[75] In an interview with Commission staff, however, officials at the U.S. Food and Drug Administration described the complexity of the oversight of chemicals in China at the national, provincial, municipal, and local levels, and expressed concern over the difficulty of enforcing regulations of chemicals when responsibility falls under numerous jurisdictions.[76] In addition, regulatory loopholes and insufficient enforcement protocols allow criminals to produce unregulated precursors and divert APIs and other chemicals with legitimate uses into the production of meth and other new and dangerous synthetic drugs.[77]

China's fragmented governing structure has contributed to administrative problems controlling chemical production, with conflicts of interest between regulatory agencies frequently contributing to regulatory failure.[78] Numerous agencies are involved in regulating chemical companies, with bureaucratic infighting preventing the government from carrying out precise and effective counternarcotic operations.[79] China's Food and Drug Administration (CFDA), for example, is responsible for drafting laws, enforcing regulations, and conducting investigations for all food safety and drug issues.[80] Additionally, a State Council Leading Group on Product Quality and Food Safety coordinates government agencies in addressing major issues related to product quality and drug safety, and the National Narcotics Control Commission coordinates with relevant Chinese departments and international agencies to meet China's obligations under international drug control conventions.[81] An Anti-Smuggling Bureau within the General Administration of Customs is responsible for the enforcement of China's drug control laws at seaports, airports, and land border checkpoints; the Ministry of Chemical Industry, Ministry of Agriculture, and Ministry of Commerce—along with the General Administration of Quality Supervision, Inspection, and Quarantine—play roles in the inspection, licensing, and export of pharmaceutical products, including precursor chemicals and APIs.[82]

Deficient local drug inspection and enforcement capabilities are another limitation of China's chemical regulations.[83] China is home to approximately 400,000 retail pharmacy shops legally selling products containing ephedrine and pseudoephedrine and other precursor chemicals, in addition to the 160,000 precursor production plants and 5,000 pharmaceutical companies.[84] Because regulators are not able to adequately inspect all chemical production and distribution facilities, precursor chemical producers easily avoid detection by migrating to jurisdictions with less vigilant drug enforcement.[85] Chinese law enforcement personnel are mainly concentrated in urban centers, leading to increased drug activity in rural areas and poorer communities.[86] Meanwhile, online API and precursor sales remain extremely covert in China and are difficult for law enforcement authorities to identify, allowing drug producers to collect payments and deliver chemicals without detection.[87] In a 2015 *New York Times* investigation into China's unbridled online drug market, a UN official explained that China has "an enormous chemical industry and … doesn't have the capacity to monitor and control it."[88]

China's regulations governing nonpharmaceutical chemical production are also limited and easy to bypass.[89] In 2011, the CFDA published new drug manufacturing practices, which were viewed as a significant step toward improving inspection and oversight procedures.[90] However, due to a regulatory loophole that left Chinese chemical companies out of the CFDA's jurisdiction, Chinese chemical production facilities—even those making pharmaceutical components and APIs—were registered as nonpharmaceutical companies with the state, leaving

[*] Export figures do not include illicit trafficking and production of ephedrine and pseudoephedrine. United States Department of State, *2014 International Narcotics Control Strategy Report* (INCSR), March 2014. *http://www.state.gov/j/inl/rls/nrcrpt/2014/vol1/223176.htm.*

them in a gray area of regulation free from inspection requirements and other certification systems.[91] In an interview in 2007, Yan Jiangying, the former deputy director of policy and regulation at the CFDA, revealed the CFDA had "never investigated a chemical company," because "we don't have jurisdiction [to do so]."[92] The loophole was not closed until 2014, when China's State Administration of Work Safety implemented new regulations on the management of precursor chemicals to strengthen oversight on nonpharmaceutical businesses, including enforcing stricter licensing requirements.[93] It is unclear, however, if the new regulations have sufficiently addressed the issue.

In addition, inadequate regulations on chemical companies have led to a large number of unlicensed chemical companies operating in China.[94] Many of China's chemical production facilities are described as "semi-legitimate" producers, which are allowed to make chemicals but unlicensed to sell them to pharmaceutical companies.[95] Instead, semi-legitimate chemical companies churn out massive quantities of product to sell in bulk to licensed chemicals manufacturers as compounds for pharmaceuticals.[96] The operations of semi-legitimate chemical companies are difficult to investigate because they sell to other businesses—many of which operate with little-to-no government oversight and regulation—and not to the general public.[97] Through these unlicensed chemical companies, drug traffickers can easily gain access to precursor chemicals.[98]

Pharmaceutical companies also take advantage of the lack of oversight on chemical companies, creating "show and shadow factories" whereby the company registered with the Chinese government and inspected by the CFDA is not where the chemicals are produced.[99] To get around CFDA regulations, pharmaceutical firms will buy a token amount of chemicals from certified suppliers to pass inspection, while using unlicensed facilities to produce a majority of their products, including precursor chemicals.[100] Thus, not only are pharmaceutical ingredients manufactured by China's chemical companies not really inspected or certified for pharmaceutical use, but also their production of precursor chemicals far exceeds limits imposed by regulators.[101] In 2007, Wang Siqing, the managing director of a pharmaceutical company in China, estimated uncertified chemical companies make half the active pharmaceutical ingredients sold in China, with most exports from unregulated companies going to Africa or South America.[102] Although China has begun more stringently enforcing regulations governing pharmaceutical production in recent years, FDA officials still "routinely come across shadow facilities" when conducting inspections of Chinese pharmaceutical companies.[103]

Beyond Meth: China's Fentanyl Production

In addition to producing meth precursor chemicals, China exports other synthetic drug precursors, including compounds necessary for the manufacture of fentanyl and fentanyl-like substances. Fentanyl, a Schedule II drug, is a powerful synthetic opiate painkiller similar to morphine but 100 times more potent.[104] U.S. health and law enforcement officials have seen a recent spike in fentanyl-related deaths, with a recent report from the Centers for Disease Control and Prevention indicating deaths from overdoses of illicitly manufactured fentanyl and synthetic opioid pain relievers increased 80 percent year-on-year in 2014.[105] According to drug investigators, Chinese suppliers are providing both raw fentanyl and the machinery necessary for fentanyl production.[106] Like meth, fentanyl and fentanyl-like products are made in Mexico from Chinese chemicals before being transported to the United States.[107]

Fentanyl and many of its analogs are now controlled in China as part of the 116 new banned chemicals announced in October 2015.[108] Recently, Chinese manufacturers started producing and openly selling a new form of the drug in China, called furanyl fentanyl.[109] Because of its modified chemical structure, the substance is not currently controlled in the United States or China.[110] The DEA is working to add furanyl fentanyl to the U.S. list of controlled substances and pressuring China to include the drug in its list of banned synthetic chemicals.[111] Counternarcotic experts warn banning the chemical is not enough, however, and will lead to the creation of a new synthetic substance, much as banning fentanyl resulted in the spread of furanyl fentanyl.[112]

Legislation has already been passed at the state level to strengthen U.S. anti-trafficking laws as they relate to fentanyl. In February 2016, Massachusetts enacted a law making the trafficking of fentanyl a crime and increasing the penalty for fentanyl possession and distribution from ten to 20 years.[113] Although the trafficking of other drugs, including heroin, marijuana, and cocaine, was already criminalized, the state did not have similar laws for fentanyl.[114]

Along with shortfalls in Chinese regulations governing precursor production, anecdotal evidence suggests corrupt government officials actively undermine chemical production regulations.[115] A 2002 report by the *Washington Post* revealed that Chinese military leaders were participating in counterfeit and illegal chemical trade, with military trucks being used to transport pharmaceuticals for unlicensed chemical production.[116] This behavior was tolerated by officials, with corrupt politicians paid off to not inspect manufacturing facilities or conduct drug quality assessments.[117] As recently as 2008, local government officials in Guangdong Province, a meth-making hub in China, were caught encouraging farmers to illegally grow plants that produce a natural source of ephedrine for meth production.[118] In the last few years, however, Beijing has begun cracking down on local government corruption, expelling 41 officials from Yunnan Province for drug use in 2014.[119] Still, officials are susceptible to bribery from drug producers, particularly in localities where regulators are underpaid and overloaded with applications.[120]

U.S. Efforts to Address Precursor Chemical Flows from China

Although the majority of meth sold in the United States is made with precursor chemicals originating in China, these precursors do not enter the United States directly. Rather, they are transported via a network of land and sea routes to Central America.[121] This considerably complicates U.S. counternarcotic efforts. In many cases, precursor chemicals are shipped openly and legally because they are not controlled in China or in the destination country.[122] Therefore, precursor chemical flows cannot be reduced through U.S.-China bilateral efforts alone, but also require cooperation with Central American countries.[123]

To reduce precursor chemical flows, the United States and the international community at large have intensified counternarcotic cooperation efforts with China. The U.S.-China Joint Liaison Group, for instance, which convened its 14th annual meeting in October 2015, seeks to address global law enforcement concerns shared by the United States and China, including controlling precursor chemical flows and cooperating on trends in drug abuse and trafficking.[124] The DEA and the Narcotics Control Bureau of China are also parties to the Bilateral Drug Intelligence Working Group, which brings legal and law enforcement experts together to share drug trafficking information and discuss new avenues for antidrug cooperation.[125] In addition, the U.S. Pacific Command's (PACOM) Joint Interagency Task Force-West (JIATFW) works with Department of Defense counternarcotic authorities to open new avenues of cooperation with Chinese officials, providing training and other support to combat drug trafficking.[126] Admiral Harry Harris, the commander of PACOM, said JIATFW's efforts "show promise in improving communication, cooperation, and information sharing on significant criminal enterprises operating in the U.S. and China."[127]

International tracking systems like the Pre-Export Notification (PEN) system and Precursors Incident Communication System (PICS) can also be used to identify suspicious transactions in international trade.[128] The PEN system was created under the 1988 UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, and is used by 150 UN member states and territories—including China—to provide clearance for chemical shipments and acknowledge receipt of precursor chemical exports.[129] PICS is an online tool developed in 2012 by the U.S. Bureau of International Narcotics and Law Enforcement Affairs (INL) to enhance real-time communication and information sharing between national authorities on precursor incidents.[130] These communication tools have fostered coordination among competent national authorities, with PICS, for example, used to share intelligence on more than 800 instances of chemical trafficking since 2012 (for a full list of UN controlled chemicals, see Appendix III, "Controlled Chemicals under 1988 UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances").[*] [131]

Enhanced chemical regulations and streamlined emergency scheduling[†] protocols enable U.S. law enforcement officials to limit shipments of new or modified chemicals. In May 2016, the president signed the Transnational Drug Trafficking Act into law, lowering the threshold for prosecuting extraterritorial drug traffickers to include individuals with "reasonable cause to believe" that their illegal drugs will be trafficked into the United States.[132]

[*] As of November 1, 2014, China had accessed the PICS database over 50 times. UN International Narcotics Control Board, "Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances," March 2015, 15.

[†] Emergency scheduling introduces temporary restrictions on a chemical while a final decision is made on whether to permanently control the substance. Jonathan P. Caulkins and Carolyn Coulson, "To Schedule or Not to Schedule: How Well Do We Decide?" *Journal of Global Drug Policy and Practice* 205:20 (December 2010): 11.

Additionally, the Synthetic Drug Abuse Prevention Act (signed into law in 2012) banned more than 20 chemical compounds used in synthetic drugs, doubled the review period for emergency scheduled substances from 18 to 36 months, and expanded the DEA's emergency scheduling authority to allow the DEA to more quickly ban new chemicals.[133] Between May 2012 and February 2014, the DEA emergency scheduled more than 20 chemicals deemed to present an imminent hazard to public safety and significantly reduced the number of harmful chemicals in the United States.[134] In its 2012 annual report, the UN International Narcotics Control Board praised international efforts to streamline emergency scheduling procedures, stating that they have been "highly effective in ensuring that the public is not unnecessarily put at risk before a comprehensive evaluation of [a] substance can be undertaken by national authorities."[135]

The United States also supports efforts to develop and strengthen international precursor laws and regulations in compliance with international drug control treaties. The INL, for instance, manages and funds international counternarcotic training programs, which focus on increasing cooperation and improving the technical skills of foreign drug law enforcement personnel.[136] U.S. counternarcotic efforts consist of both general law enforcement training and specialized training for mid-level managers in police and other law enforcement agencies around the globe.[137] However, the INL does not have a representative in Beijing and does not provide funding for counternarcotic efforts in China.[138] Instead, the Department of State and DEA combat Chinese drug trafficking organizations by providing investigative assistance to foreign governments—particularly in Central America—and helping to develop more effective international drug control laws and regulations.[139]

While the INL has no direct funding projects in China or East Asia to reduce drug-related activity, the United States has funded programs to cut off chemical flows into Central America, including dedicating $1.15 billion between 2008 and 2015 to the Central America Regional Security Initiative (CARSI).[140] Nearly 66 percent of CARSI's funding was given to the International Narcotics Control and Law Enforcement foreign aid account, helping Central American governments build law enforcement institutions to counter transnational crime—including narcotics—and create transparent and accountable public institutions.[141] The DEA's Sensitive Investigative Unit (SIU), authorized by Congress in fiscal year (FY) 1997, also conducts field operations in Central American countries designated by Congress, identifying and training DEA foreign counterparts in counternarcotic investigations.[142] According to the United States Department of Justice, the SIU program has "unquestionably enhanced DEA's ability to fight drug trafficking on a global scale."[143] Despite increasing levels of trafficking activity in China, Congress has not designated China as a specific SIU location, and thus there are no units currently operating in the country.[144]

Limitations of Counternarcotic Regulations

U.S. efforts to reduce international narcotic and drug trafficking remain insufficiently equipped to reduce shipments of precursor chemicals from China. The numerous ways precursor exports can be hidden include:

- ***Mislabeling:*** Mislabeling shipments of precursor chemicals is one way Chinese drug traffickers avoid detection by U.S. and foreign authorities.[145] According to members of the team at JIATFW, "As international authorities have intensified efforts to identify and seize illegal precursor shipments, drug traffickers have begun mislabeling chemical shipments with greater frequency. As mislabeling increases, so do the challenges for law enforcement and customs officers in identifying these shipments."[146]
- ***Modifying Chemicals:*** Precursors can also be chemically modified, making them technically legal and permissible to export.[147] These modified chemicals contain compounds similar to banned precursors and are designed to mimic their use, but are not included on the UN or U.S. lists of banned chemicals.[148] Because PICS and the PEN system can only identify chemicals controlled by the UN and United States, new or modified chemicals are not flagged.[149] In addition, DEA officials told Commission staff that hundreds of different chemical combinations can be used to produce drug precursor chemicals, making it difficult for regulatory authorities to keep up.[150]
- ***Shipping Pre-Precursor Chemicals:*** As precursor chemicals have become more difficult to ship undetected, Chinese drug traffickers have begun transporting pre-precursors, or the chemicals used to create precursors.[151] By shipping noncontrolled pre-precursor chemicals—including APAAN (alpha-

phenylacetoacetonitrile), benzaldehyde, and nitroethane, among others—traffickers are able to avoid detection.[152] Like modified chemicals, many pre-precursors are legal, and so are not flagged by PICS or the PEN system.[153]

- ***Insufficient Partner Country Counternarcotic Capabilities:*** Many Central American countries still lack the institutional and regulatory capabilities to identify and seize illegal precursor chemical shipments.[154] Chinese drug traffickers take advantage of these weaknesses in global counternarcotic operations, sending precursor chemicals to countries where the chances of detection and seizure are lower.[155] When precursors are detected, Central American governments often lack proper means for storage and disposal, instead holding the chemicals in ports and warehouses that can result in environmental degradation.[156]
- ***Illegal Activity:*** Because they are illicit, drug shipments facilitated by criminal organizations limit the effectiveness of the PICS and the PEN system, customs and port authority inspections, and other regulations governing precursor flows. Transnational criminal organization operatives typically use large, illegally operated boats to smuggle precursor chemicals from China to ports in Central America and Mexico, where organized crime groups pick up the chemicals and transport them in SUVs and trucks to meth labs.[157] These operations—commonly carried out by Chinese triads and Central American drug cartels—circumvent the counternarcotic regime currently in place.[158]

Considerations for Congress

Although chemical production is difficult to measure in China's opaque pharmaceutical and chemical industries, China is clearly one of the world's largest manufacturers of precursor chemicals.[159] China has made efforts to reduce its domestic meth production and curb the export of precursor chemicals, yet the country's vast pharmaceutical and chemical industries remain largely unregulated. As a result, meth precursor chemical flows—along with other dangerous synthetic drugs—from China into the Western Hemisphere continue to increase, contributing to a growing drug problem in the United States.

The onus to reduce China's meth precursor chemical production lies largely on Beijing. The increasing frequency of drug raids in meth-producing towns like Boshe, along with the implementation of new antinarcotic regulations, indicate the Chinese government is aware of this growing drug problem and willing to address the issue. To reduce the prevalence of meth—both in China and around the world—Chinese leaders should continue to address shortfalls in existing chemical regulations and implement new requirements for chemical production.

The United States and other foreign nations also bear responsibility for enhancing international regulations governing chemical shipments and drug trafficking. Countries have attempted to reduce precursor imports through stricter chemical regulations, with the U.S. and Mexican governments both restricting sales of products containing precursor chemicals. Drug producers have several methods for avoiding detection by local and international authorities and circumventing Chinese and international antidrug regulations, including mislabeling chemical shipments, modifying illegal chemicals, and shipping legal pre-precursor chemicals.

To reduce precursor chemical flows from China into the Western Hemisphere, Congress should consider the following questions:

- **How can Congress encourage China to improve its chemical production regulations?**

  Congress should encourage future administrations to work with Beijing to centralize its drug authorities and coordinate more closely with the DEA and U.S. FDA. Giving one agency like the CFDA sole authority over pharmaceutical and chemical production in China would formalize inspection practices, allow for better distribution of counternarcotic resources, and simplify coordination and communication efforts between Chinese regulators and their counterparts in the United States. Along with encouraging an increased role for the CFDA, establishing more frequent communication between U.S. and Chinese drug regulators could increase awareness of suspected drug shipments, leading to more seizures and reduced precursor flows.

- **How should Congress recommend China reform laws governing precursor chemical production?**

Congress should encourage future administrations to pressure Beijing to revise its laws governing chemical exports. Currently, Chinese law enforcement lacks the authority to crack down on meth precursor production because many of the chemicals are not controlled in China. To enhance Chinese law enforcement's ability to enforce precursor restrictions, Beijing should adopt new regulations making it illegal to knowingly ship a substance that is illegal in the destination country. Additionally, Beijing should add additional meth precursor chemicals to its list of controlled substances.

- **How can global communication networks be enhanced?**

  Congress should recommend that the U.S. Department of State's Bureau of International Narcotics and Law Enforcement Affairs send a team to Beijing to cooperate directly with Chinese law enforcement on counternarcotic issues. Increased communication with antidrug counterparts in Central America and Asia—with the United States acting as a facilitator for these discussions—could significantly reduce drug traffickers' ability to circumvent regulations and facilitate illegal precursor flows.

- **How can capabilities for tracking and destroying Chinese chemicals be improved?**

  The United States should designate China as a SIU location. By adding a SIU unit in China, the DEA could better establish an effective and trustworthy counternarcotic system in China. To accommodate this expansion, Congress should consider increasing funding for the program.

Appendix I: Controlled Chemicals in the United States

List I	1.	Anthranilic acid, its esters, and its salts
	2.	Benzyl cyanide
	3.	Ephedrine, its salts, optical isomers, and salts of optical isomers
	4.	Ergonovine and its salts
	5.	Ergotamine and its salts
	6.	N-Acetylanthranilic acid, its esters, and its salts
	7.	Norpseudoephedrine, its salts, optical isomers, and salts of optical isomers
	8.	Phenylacetic acid, its esters, and its salts
	9.	Phenylpropanolamine, its salts, optical isomers, and salts of optical isomers
	10.	Piperidine and its salts
	11.	Pseudoephedrine, its salts, optical isomers, and salts of optical isomers
	12.	3,4-Methylenedioxyphenyl-2-propanone
	13.	Methylamine and its salts
	14.	Ethylamine and its salts
	15.	Propionic anhydride
	16.	Isosafrole
	17.	Safrole
	18.	Piperonal
	19.	N-Methylephedrine, its salts, optical isomers, and salts of optical isomers
	20.	N-Methylpseudoephedrine, its salts, optical isomers, and salts of optical isomers
	21.	Hydriodic Acid
	22.	Benzaldehyde
	23.	Nitroethane
	24.	Gamma-Butyrolactone (Other names include: GBL; Dihydro-2 (3H)-furanone; 1,2-Butanolide; 1,4-Butanolide; 4-Hydroxybutanoic acid lactone; gamma-hydroxybutyric acid lactone)
	25.	Red Phosphorus
	26.	White phosphorus (Other names: Yellow Phosphorus)
	27.	Hypophosphorous acid and its salts (including ammonium hypophosphite, calcium hypophosphite, iron hypophosphite, potassium hypophosphite manganese hypophosphite magnesium hypophosphite, and sodium hypophosphite
	28.	N-phenethyl-4-piperidone (NPP)
	29.	Iodine
	30.	Ergocristine and its salts
List II	1.	Acetic anydride
	2.	Acetone
	3.	Benzyl chloride
	4.	Ethyl ether
	5.	Potassium permanganate
	6.	2-Butanone (or Methyl Ethyl Keton or MEK)
	7.	Toluene

	8.	Hydrochloric acid (including anhydrous hydrogen chloride)
	9.	Sulfuric Acid
	10.	Methyl Isobutyl Ketone (MIBK)
	11.	Sodium Permanganate

Note: List I chemicals are more important to the manufacture of a controlled substance than List II chemicals.
Source: United States Department of Justice Office of Diversion Control, *Records and Reports of Listed Chemicals and Certain Machines*. *http://www.deadiversion.usdoj.gov/21cfr/cfr/1310/1310_02.htm*.

Appendix II: Controlled Precursor Chemicals in China

Category 1 - High Risk Substances	1.	1-phenyl-2-propane, CAS 103-79-7
	2.	3,4-Methylenedioxyphenyl-2-propanone, CAS4676-39-5
	3.	Piperonal, CAS 120-57-0
	4.	Safrole, CAS 94-59-7
	5.	Sassafras oil
	6.	Iso-safrole, CAS 120-58-1
	7.	N-Acetylanthranilic acid, CAS 89-52-1
	8.	O-amino benzoic acid, CAS 118-92-3
	9.	Ergotic acid, CAS 82-58-6
	10.	Ergotamine, CAS 113-15-5
	11.	Ergobasine, CAS 60-79-712
	12.	Ephedrine, pseudoephedrine, mesoephedrine, phenylpropanolamine, methylephedrine, ephedrine extractum, ephedrine extractum power, and other ephedrine substances
	13.	Hydroxylimine, CAS 90717-16-1 and its salts (added in 2008)
	14.	2-Chlorophenyl cyclopentyl ketone, CAS 6740-85-8 (added in 2012)
	15.	1-Phenyl-2-Bromo-1-Propanol, CAS 2114-00-3 (added in 2014)
	16.	3-oxo-2-phenylbutyronitrile, CAS 4468-48-8 (added in 2014)
Category 2 - Precursors	1.	Phenylacetic acid, CAS 103-82-2
	2.	Acetic anhydride, CAS 108-24-7
	3.	Chloroform, CAS 67-66-3
	4.	Aether, CAS 60-29-7
	5.	Piperidine, CAS 110-89-4
Category 3 - Other Raw Materials	1.	Toluene, CAS 108-88-3
	2.	Acetone, CAS 67-64-1
	3.	Methyl ether ketone, CAS 78-93-3
	4.	Potassium permanganate, CAS 7722-64-7
	5.	Sulphuric acid, CAS 7664-93-9
	6.	Hydrochloric acid, CAS 7647-01-0

Source: ChemSafetyPRO, "Management of Drug Precursor Chemicals in China." *http://www.chemsafetypro.com/Topics/China/Drug_Precursor_Chemicals.html*.

Appendix III: Controlled Chemicals under 1988 UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances

Table I	1.	Acetic anhydride
	2.	N-Acetylanthranilic acid
	3.	Ephedrine
	4.	Ergometrine
	5.	Ergotamine
	6.	Isosafrole
	7.	Lysergic acid
	8.	3,4-Methylenedioxyphenyl-2-propanone
	9.	Norephedrine
	10.	Phenylacetic acid
	11.	alpha-Phenylacetoacetonitrile
	12.	1-Phenyl-2-propanone
	13.	Piperonal
	14.	Potassium permanganate
	15.	Psudoephedrine
	16.	Safrole
Table II	1.	Acetone
	2.	Anthranilic acid
	3.	Ethyl ether
	4.	Hydrochloric acid*
	5.	Methyl ethyl ketone
	6.	Piperidine
	7.	Sulphuric acid*
	8.	Toluene

Note: Table I chemicals are more critical to the production of controlled substances than chemicals in the Table II, with more rigorous provisions concerning Table I substances. Asterisks indicate that the salts of these chemicals are not controlled.
Source: UN International Narcotics Control Board, "Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances," March 2015, 49.

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