

III. Extent of licit trade in precursors and latest trends in precursor trafficking

40. The proportion of seized substances in Table I of the 1988 Convention is often small when compared with international trade in those substances reported by Governments (see table 1). For example, seizures of acetic anhydride or potassium permanganate account for less than 1 per cent of international trade as reported by

Governments. In the case of some substances, seizures represent a more sizeable proportion compared with international trade; seizures of ephedrine, in bulk or in the form of pharmaceutical preparations, account for approximately 15 per cent of all reported trade in that substance. There is almost no legitimate trade in 3,4-MDP-2-P; thus, seizures of that substance reflect figures that are far in excess of the volume of licit commerce. Substances in Table II have such widespread legitimate industrial uses that seizures of those substances account for an insignificant proportion of international trade (see table 2).

Table 1. Substances in Table I of the 1988 Convention: seizures as a proportion of trade reported by Governments on form D, 2007-2011

<i>Substance</i>	<i>Average amount reported seized annually</i>	<i>Average amount reported in international trade annually</i>	<i>Seizures as a proportion of average annual trade (percentage)</i>
Acetic anhydride (litres)	139 000	288 997 000	<1
<i>N</i> -Acetylanthranilic acid (kilograms)	<100	2 000	<1
Ephedrine (kilograms)			
Bulk	28 800	212 000	14
Preparations	800	5 000	16
Ergometrine (grams)	700	48 000	1
Ergotamine (grams)	18 000	869 000	2
Isosafrole (litres)	100	16 000	1
Lysergic acid (grams)	300	3 000	7
3,4-Methylenedioxyphenyl-2-propanone (litres)	1 100	100	1 100
Norephedrine (kilograms)	200	168 000	<1
1-Phenyl-2-propanone (litres)	8 600	57 000	15
Phenylacetic acid (kilograms)	259 700	2 464 000	11
Piperonal (kilograms)	1 600	8 476 000	<1
Potassium permanganate (kilograms)	59 500	16 895 000	<1
Pseudoephedrine (kilograms)			
Bulk	16 300	1 068 000	2
Preparations	2 700	71 000	4
Safrole, safrole-rich oils (sassafras) (litres)	13 200	4 075 000	<1

Notes: These data must be viewed against a number of limitations, such as inconsistent reporting by Governments, and should be considered in a broader context, reflecting time periods longer than the actual reporting year. Therefore, the data and conclusions presented reflect information that covers multiple years.

Figures are based on a five-year average of data provided on form D (2007-2011). Seizure data are rounded to the nearest hundred, and trade data are rounded to the nearest thousand. Trade data reflect the Government-reported imports or exports (whichever is greater) by substance group. Data do not include instances where pharmaceutical preparations are reported by Governments in units instead of standardized measures.

Table 2. Substances in Table II of the 1988 Convention: seizures as a proportion of trade reported by Governments on form D, 2007-2011

<i>Substance</i>	<i>Average amount reported seized annually</i>	<i>Average amount reported in international trade annually</i>	<i>Seizure as a proportion of average annual trade (percentage)</i>
Acetone (litres)	1 243 000	973 288 000	<1
Anthranilic acid (kilograms)	<1 000	1 549 000	<1
Ethyl ether (litres)	66 000	6 717 000	1
Hydrochloric acid (litres)	760 000	348 515 000	<1
Methyl ethyl ketone (litres)	69 000	1 424 389 000	<1
Piperidine (litres)	<1 000	1 410 000	<1
Sulphuric acid (litres)	1 048 000	8 500 353 000	<1
Toluene (litres)	102 000	963 563 000	<1

Notes: Figures are based on a five-year average of data provided on form D (2007-2011). Both seizure data and trade data are rounded to the nearest thousand. Trade data reflect the Government-reported imports or exports (whichever is greater) by substance group.

A. Substances used in the illicit manufacture of amphetamine-type stimulants

41. Significant international trade occurs in many of the precursors used in the manufacture of amphetamine-type stimulants. Several precursors of amphetamine-type stimulants continue to be diverted from international trade for use in the illicit manufacture of drugs. During the reporting period, the authorities of 44 exporting countries used the PEN Online system to report over 5,000 transactions involving shipments of precursors of amphetamine-type stimulants.

1. Ephedrine and pseudoephedrine

42. Ephedrine and pseudoephedrine — used in illicit methamphetamine manufacture — are some of the most frequently traded substances in Table I of the 1988 Convention and, as such, significant diversions of those substances, often in the form of pharmaceutical preparations, continue to be reported throughout the world. Although large amounts of ephedrine and pseudoephedrine continue to be seized in regions with significant illicit methamphetamine manufacture, the reliance upon those precursor chemicals may be decreasing, particularly in parts of Latin America where other methods are increasingly being used. Countries in South-East Asia reported seizing an increasing amount of ephedrine and pseudoephedrine in the form of pharmaceutical preparations; however, comprehensive reporting remains problematic. West Asian countries have high annual legitimate requirements for the import of those substances, while the number of dismantled clandestine methamphetamine laboratories and the smuggling of the

precursors used in those laboratories have grown. There have been few reports of seizures of such substances in African countries; however, the increasing number of dismantled clandestine methamphetamine laboratories in Africa suggests that diverted precursors are also available throughout the continent.

Licit trade

43. Details regarding 3,840 notifications of shipments of ephedrine and pseudoephedrine, in bulk and in the form of pharmaceutical preparations, were submitted through the PEN Online system during the reporting period. The shipments consisted of 1,036 tons and 7,570 litres of pseudoephedrine, in addition to 2.5 million tablets containing pseudoephedrine; and 300 tons of ephedrine and 130,000 tablets containing ephedrine. The shipments of ephedrine and pseudoephedrine originated in 42 exporting countries and territories and were destined for 147 importing countries and territories.

44. Several shipments of ephedrine and pseudoephedrine were stopped in the reporting period. A shipment of 500 kg of bulk pseudoephedrine sulfate sent from Belgium to Egypt was stopped as the company had no import authorization. The Islamic Republic of Iran stopped a shipment of 300 kg of preparations containing pseudoephedrine that were to have been tableted in Austria; the bulk material is believed to have originated in Belgium. A shipment containing 1,800 kg of pseudoephedrine preparations originating in the Lao People's Democratic Republic and destined for Guatemala was stopped after Guatemalan authorities contacted the Board and the Board notified the Lao authorities that the importation of the substance was prohibited in the country

of destination. A shipment of 60 kg of ephedrine originating in India via the United Kingdom of Great Britain and Northern Ireland and destined for Panama, was stopped after authorities in Panama informed the Board that the company was unknown.

Trafficking

45. Thirty-eight Governments indicated on form D that they had seized a total of 75.9 tons of ephedrine and pseudoephedrine in bulk and in the form of pharmaceutical preparations, of which 29.2 tons (38 per cent) were bulk ephedrine, 33.8 tons were ephedrine in the form of pharmaceutical preparations, 6.4 tons were pseudoephedrine and 2.3 tons were pseudoephedrine in the form of pharmaceutical preparations. In addition, 15.1 million tablets of preparations containing pseudoephedrine and 447,078 tablets containing ephedrine were also reported seized. In 2011, Australia, China, India, Malaysia, Mexico and the United States¹¹ each reported multi-ton seizures of ephedrines. The number of Governments reporting seizures of ephedrine and pseudoephedrine regardless of their physical form has increased 26 per cent since 2007.

46. Significant seizures of ephedrine and pseudoephedrine in the form of pharmaceutical preparations continue to be reported throughout East and South-East Asia. The increase in seizures may be related to improved awareness and controls over bulk ephedrine and pseudoephedrine, resulting in greater difficulty in obtaining those bulk precursors. The trafficked pharmaceutical preparations are primarily destined for illicit manufacture of methamphetamine in Myanmar (and, increasingly, Cambodia).

47. A significant amount of pharmaceutical preparations containing pseudoephedrine is diverted from the Republic of Korea. This issue was highlighted in the Board's 2011 report on precursors. Since then, six additional seizures and stopped shipments have been reported. In 2012, authorities in Hong Kong, China, requested that two shipments destined for their territory — 600 kg and 1 million tablets — be stopped. An unauthorized shipment of 60 kg of pseudoephedrine hydrochloride in the form of a pharmaceutical preparation was seized in the Lao People's Democratic Republic. Thailand reported the seizure of

2 million tablets containing pseudoephedrine that had originated in the Republic of Korea and transited Singapore. The results of investigations by authorities of Singapore and Thailand led to a second seizure: 2 million tablets en route to Malaysia by air. Finally, a shipment of 300,000 tablets destined for Ghana was requested to be stopped, as the company had no import authorization.

48. Authorities in Thailand identified the disappearance of large amounts of pharmaceutical preparations containing pseudoephedrine from various private and public hospitals in the central, north-eastern and northern parts of Thailand and alleged irregularities concerning orders of the substance for licit use, resulting in significant discrepancies between the number of tablets ordered from the national competent authority and the number in hospital inventories. There are indications that the tablets were subsequently smuggled into neighbouring countries for use in illicit methamphetamine manufacture. Several health officials and hospital staff members were implicated in activities that were believed to have occurred over a three-year period.

49. In 2011, China reported on form D the seizure of 5.4 tons of ephedrine and pseudoephedrine — a figure similar to the one reported the previous year. In 2011, a review of the precursor industry established that there were more than 160,000 precursor operators in China. The review facilitated the inspection of companies manufacturing compound preparations containing ephedrine, which led to the dismantling of a number of illegal operations. The number of cases involving illicit manufacture of synthetic drugs increased by 20 per cent between 2010 and 2011: a total of 529 cases were reported in 2011, many of them involving illicit methamphetamine manufacture. In 2011, 14.3 tons of methamphetamine were seized, an increase of 44 per cent over the previous year, while the number of people registered for abusing synthetic drugs, including methamphetamine, reached 58,700 in 2011, a 10-fold increase over 2005.¹² Several cases of ephedrine and pseudoephedrine being trafficked into China were communicated via PICS during the reporting period. In one particular case, 776,000 tablets containing pseudoephedrine were seized after they had been smuggled out of Singapore. Authorities in China also seized 64 kg of ephedrine in the form of deteriorating pharmaceutical preparations that had originated in Bangladesh.

¹¹ The United States revised upward its seizures of precursor chemicals since 2006; it now reports total seizures, which include local, state and federal sources. The revisions are reflected in annex VIII of the present report. Ephedrine (in bulk and in the form of pharmaceutical preparations) figures reported from the United States for 2011 may inadvertently include sizable seizures of *Sida cordifolia* (see para. 64) and/or *Ephedra* plant extracts, and are thus not comparable with past figures.

¹² China, National Narcotics Control Commission, *Annual Report on Drug Control in China 2012*, p. 50.

50. In the Board's 2010 report on precursors,¹³ Bangladesh was identified as the source of most of the diverted preparations containing ephedrine and pseudoephedrine, including those with a high pseudoephedrine content and most often destined for Guatemala. Once again, there have been reports of pharmaceutical preparations containing pseudoephedrine, manufactured in Bangladesh and transiting (or smuggled via) Europe and seized while en route to Central America. Authorities in the Netherlands seized a shipment of 500 kg of pseudoephedrine; the misdeclared tablets had been exported from Bangladesh to an unknown recipient in Panama. In August 2011, the authorities in Guatemala seized a shipment of 37,980 pseudoephedrine tablets that had been manufactured in Bangladesh, shipped from Singapore via Europe and destined for Guatemala; the shipment had been sent on behalf of a Pakistan company. In a disturbing new development, consignments of bulk pseudoephedrine are now being reported "lost" at the international airport at Dhaka. The Board wishes to remind all exporting Governments that shipments of ephedrine and pseudoephedrine, regardless of their form, are prohibited in Guatemala, as well as in Belize, Colombia, El Salvador, Honduras, Mexico and Nicaragua.¹⁴ The Board strongly recommends that the Government of Bangladesh should review and strengthen domestic control measures for precursors without delay.

51. West Asian countries continued to experience considerable trafficking in methamphetamine and its precursors, as evidenced by seizures of those substances. According to a report by the Islamic Republic of Iran, 3.8 tons of ephedrine were seized in that country in 2011, along with 3.9 tons of methamphetamine — nearly triple the figure for the previous year.¹⁵ As there have been no indications that the precursors used in the manufacture of methamphetamine included P-2-P, it would require nearly 6 tons of ephedrine or pseudoephedrine, along with significant amounts of acids and solvents, to synthesize that amount of methamphetamine. The Iranian Government reported several significant incidents involving the smuggling of ephedrine from neighbouring Iraq (50 kg) and Pakistan (530 kg) in 2011.

¹³ *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2010*, para. 37.

¹⁴ Exceptions for the limited imports of injectable preparations and/or bulk material for their manufacture exist (for details, see www.incb.org/documents/PRECURSORS/ANNUAL-LICIT-REQUIREMENTS/INCB_ALR_WEB.pdf).

¹⁵ Islamic Republic of Iran, Drug Control Headquarters, *Drug Control in Iran 2011* (Tehran, March 2012).

52. As a result of domestic pharmacy dispensing limits set in 2009 in the Czech Republic, laboratories illicitly manufacturing methamphetamine on a small scale rely primarily on pharmaceutical preparations containing pseudoephedrine, which are increasingly being brought in from neighbouring countries. In 2011, Czech authorities dismantled 338 laboratories involved in the illicit manufacture of methamphetamine (known locally as "pervitin") and reported having seized in illicit laboratories a variety of scheduled chemicals (hydrochloric acid, sulphuric acid and toluene), along with large amounts of non-scheduled substances, including formic acid, hydriodic acid, iodine, red phosphorus, sodium hydroxide and potassium hydroxide.

53. Several countries in Africa also reported the seizure of modest amounts of ephedrine in 2012. Three separate seizures, each involving 25 kg of bulk ephedrine, were communicated through PICS, each involving Southern Africa: Nigeria reported seizing an air cargo consignment en route to Mozambique; a consignment originating in India was seized in Mozambique when traffickers attempted to enter South Africa with the consignment; and finally, a multi-drug seizure in South Africa led authorities to 25 kg of ephedrine at a suspected illicit methamphetamine laboratory in May 2012. There are indications that abuse of amphetamine-type stimulants — primarily methamphetamine and, to a lesser degree, methcathinone — is spreading in South Africa, as evidenced by the fact that in 2011 admissions to treatment for the abuse of amphetamine-type stimulants accounted for 28 per cent of all admissions to treatment for drug abuse, an increase over the 2008 figure (22 per cent).¹⁶ There continue to be open source reports on the dismantling of illicit drug manufacturing operations in South Africa; however, the Board notes with regret that the Government of South Africa has not submitted form D since 2009.

54. The spread of illicit drug manufacture in West Africa continues to be a matter of concern. In February 2012, the Government of Nigeria dismantled a large illicit methamphetamine laboratory, the second one in less than a year; the authorities seized 41 kg of bulk ephedrine, along with a variety of other scheduled substances and some non-scheduled substances such as acetone, toluene, hypophosphorous acid, iodine, hydrochloric acid and sodium hydroxide, the sources of which remain unknown. Consignments of methamphetamine destined for the lucrative illicit markets in East Asia and arriving on flights from several countries in West Africa give increasing credence to concerns about undetected illicit manufacture

¹⁶ Annual report questionnaire, 2008 and 2011.

of amphetamine-type stimulants in West Africa. Another worrisome trend is the increasing illicit demand for amphetamine-type stimulants in the region, suggesting the possibility of a growing illicit market for the substances, as evidenced by a recent World Health Organization (WHO) study of students in Benin that found that 1.8 per cent of students reported having used amphetamine and/or methamphetamine.¹⁷

55. There continue to be concerns about the theft and diversion of precursors in East Africa, as noted in the Board's 2011 report on precursors. The results of investigations into several cases involving the theft of ephedrine and pseudoephedrine since 2009 at Jomo Kenyatta International Airport, at Nairobi, have still not been reported to the Board. Seizures of methamphetamine originating in East African countries have been reported since 2011.

56. The United States continues to grapple with a strong resurgence of small-scale illicit methamphetamine manufacture, the number of dismantled methamphetamine laboratories growing to 7,348 in 2011 — an increase of 30 per cent over the past two years. Individuals and chemical trafficking organizations continue to circumvent purchase limits on pharmaceutical preparations containing pseudoephedrine in order to manufacture methamphetamine (primarily for personal consumption), often using a simple low-yield “one-pot” manufacturing method that requires small amounts of precursors. It is estimated that 80 per cent of the methamphetamine entering the United States enters the country via Mexico.¹⁸

57. Seizures of ephedrine and pseudoephedrine in Mexico and neighbouring Central American countries continue to decline, as the P-2-P-based manufacturing process dominates the region. Mexico reported on form D for 2011 that it had seized a mere 315 kg of ephedrine and pseudoephedrine, far less than the 9 tons reported the previous year. Guatemala, which also continued to be a source of illicitly manufactured methamphetamine in the region, reported on form D that its seizures in 2011 had dropped, compared with the previous year, to 100 kg of ephedrine, 95 kg of pseudoephedrine and 550,000 pseudoephedrine tablets and that little had been seized after May 2011. Illicit manufacture of methamphetamine in Guatemala is increasing — 13 laboratories illicitly manufacturing methamphetamine

on a large scale were reported to have been dismantled between January and September 2012.

58. Significant illicit manufacture of methamphetamine continues to occur in Oceania, relying largely on smuggled ephedrine and pseudoephedrine in bulk and in the form of pharmaceutical preparations. In December 2011, Australian authorities seized 650 kg of ContacNT, a distinct granular pharmaceutical formulation containing pseudoephedrine; it had been concealed within the metal frames of cargo shipping containers imported into Australia. Australia reported the dismantling of 703 clandestine laboratories in 2010/2011 — the majority had been involved in the illicit manufacture of methamphetamine using ephedrine or pseudoephedrine — the highest number ever reported to be dismantled. New Zealand reported the dismantling of 109 methamphetamine laboratories in 2011 — a decrease over 2010 — along with decreases in border detections of ContacNT.

2. Norephedrine and ephedra

59. International trade in norephedrine, which can be used in the manufacture of amphetamine, is low compared with trade in other precursors. The Board is aware that ephedrine alkaloids extracted from plants of the genus *Ephedra* have been used in the illicit manufacture of methamphetamine, but there is no requirement to report trade in ephedra or ephedra-based products. Although both norephedrine and ephedra have been found in illicit drug laboratories, such occurrences are unusual, accounting for a tiny proportion of substances reported to be found in such laboratories.

Licit trade

60. According to the PEN Online system, during the reporting period, 12 countries exported norephedrine to 33 countries: 141 transactions involving a total of 41 tons of norephedrine. There were no suspended shipments of norephedrine communicated through PEN Online.

Trafficking

61. Seizures of small amounts of norephedrine were reported on form D for 2011 by the authorities from Australia, Germany, New Zealand, Ukraine and the United States.

62. Seizures of *Ephedra* plant totalling 28 tons were reported on form D for 2011 by Australia, Kyrgyzstan and New Zealand. Kyrgyzstan reported seizing 27.8 tons of the substance. In 2011, Australia identified 84 consignments of *Ephedra* plant totalling 14.5 kg, a notable increase over the previous year's figures (34 consignments totalling 3 kg).

¹⁷ World Health Organization, “Global school-based student health survey (GSHS): Benin full report” (2011), p. 17.

¹⁸ United States, Department of Justice, National Drug Intelligence Center, *National Drug Threat Assessment 2011* (August 2011), p. 13, figure 1.

Most of the seized consignments had been sent through the postal system, primarily from New Zealand, Taiwan Province of China and the United States, often in the form of dietary or weight-loss supplements. However, it remains unclear whether they had been intended for use in the illicit drug manufacture.

63. The Board is aware through open source reports of a significant seizure of *Ephedra* plant material in China in May 2012. Authorities dismantled a clandestine ephedrine extraction laboratory, seizing 14 tons of *Ephedra* plant material and 47 kg of processed ephedrine. There are indications suggesting that the suspects had originally obtained 18 tons of *Ephedra* plant. It is unclear whether the ephedrine had been intended for domestic or international destinations.

64. The plant *Sida cordifolia* and its extracts, which contain ephedrine, have been found in clandestine methamphetamine laboratories in several countries. The United States reported seizing 14 tons of the plant material in New York in October 2011; the seized plant material had originated in India and the organization procuring it had previously been involved in transporting significant quantities of the material to organized criminal groups operating in Mexico. Authorities in New Zealand have determined that the plant has been used in a small but growing number of clandestine methamphetamine laboratories since 2005 and that seizures of the plant material or extracts containing it were reported in 2011. Small amounts of the plant material were also reported seized by Australian customs authorities in 2010/11.

3. 1-Phenyl-2-propanone and phenylacetic acid

65. P-2-P can be synthesized from phenylacetic acid and can be used in the illicit manufacture of amphetamine or methamphetamine. Licit international trade in phenylacetic acid is significant and widespread, especially if the non-scheduled esters and derivatives of phenylacetic acid are taken into account. Licit trade in P-2-P is far more limited, in terms of both the volume and the number of countries involved. Methods based on the use of P-2-P, including those that start with phenylacetic acid and its esters, are the predominant methods used for the illicit manufacture of methamphetamine, particularly by organized criminal groups operating in Mexico and neighbouring countries. Seizures of P-2-P that had been intended primarily for use in illicit amphetamine manufacture continue to be made in Europe. In Jordan, imports of P-2-P for the alleged use in the manufacture of cleaning products have now been prohibited by the Government.

66. During the reporting period, the Board was informed of a shipment of 400 kg of P-2-P sent from India to Azerbaijan. The authorities of Azerbaijan informed the Board that the original import authorization had been issued for hydrochloric acid, and not P-2-P. The shipment was subsequently stopped by India.

Licit trade

67. In the reporting period, the PEN Online system was used to send notifications about only 36 shipments of P-2-P, totalling 22,900 litres. There were 411 shipments of phenylacetic acid, amounting to 307 tons, which represented an increase over previous years, as the substance was moved to Table I of the 1988 Convention in January 2011. Only 27 Governments reported legitimate requirements for P-2-P; 7 of those Governments reported having an annual legitimate requirement for the import of the substance that was greater than 1 kg per year.

68. In February 2012, India sent a pre-notification for a shipment of 2 tons of P-2-P destined for Mozambique. The importer was new and the Indian authorities requested the competent authorities of Mozambique to confirm the legitimacy of both the transaction and the import authorization. The Mozambican authorities informed the Indian authorities that the company was not authorized to import the substance and that the import certificate had been falsified.

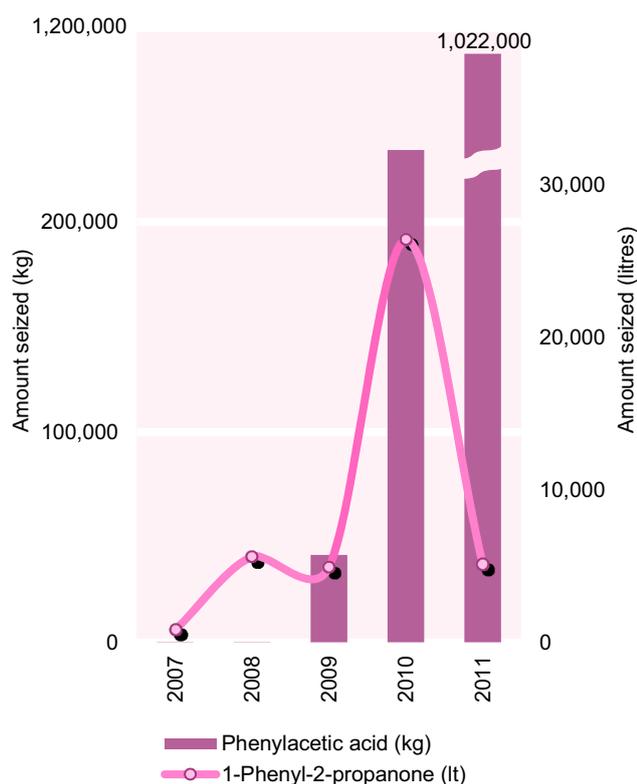
69. The Polish authorities requested that a shipment of 18 tons of phenylacetic acid, which had been ordered in China, be stopped because the company was not authorized to import the substance and, according to the company, it had only requested the price to possibly order the substance through the Internet. According to trade data reported on form D and transactional data from PEN Online, Poland has so far had only modest imports of phenylacetic acid. The Board recommends that Governments analyse the history of patterns of trade in phenylacetic acid (and its esters) so that attempts at diversion may be identified and thwarted. The Board stands ready to assist Governments where required.

Trafficking

70. Twelve Governments reported to the Board on form D that they had seized a total of 5,312 litres of P-2-P in 2011 — of which more than half was reported to have been seized in Europe. Seizures of phenylacetic acid totalling 1,027 tons were reported by six Governments on form D for 2011; the seizures had been made largely in North America (Mexico and the United States) (see figure I). The United States reported seizing 997 tons of the substance, an amount which may also contain

seizures of its unscheduled esters, and represents the largest amount of the substance ever reported seized in a single year. The amount is illustrative of the increasing role of the substance in illicit manufacture of methamphetamine in neighbouring Mexico.

Figure I. Seizures of 1-phenyl-2-propanone and phenylacetic acid reported by Governments on form D, 2007-2011



71. Mexico reported seizing 2,184 litres of P-2-P in 2011. That figure is not reflective of the method used for illicit methamphetamine manufacture based on the use of P-2-P because the starting material used in that process is primarily phenylacetic acid or its derivatives. Several European countries, above all Lithuania (600 litres) and Bulgaria (545 litres), reported seizures of P-2-P totalling 1,648 litres.

72. The Russian Federation accounted for 1,060 litres of P-2-P reported seized in 2011. The sources and circumstances relating to this amount of seized P-2-P have not been provided to the Board. The Russian Federation is no longer a manufacturer of P-2-P; the last facility for the manufacture of P-2-P in the country closed in 2009.

73. Bulgaria and Turkey have been important sources of amphetamine and the production of fake Captagon tablets for illicit markets in the Middle East — primarily in Saudi Arabia and its neighbouring countries — but the declining number of seizures in those countries suggests that illicit manufacture of those substances is occurring closer to those markets. Nonetheless, Bulgarian authorities reported the dismantling of two large illicit amphetamine laboratories in 2011, seizing 256 and 290 kg of P-2-P, respectively. In January 2012, as the result of an international investigation and a controlled delivery operation, Bulgarian authorities reported the dismantling of three illicit amphetamine laboratories, seizing 15 kg of amphetamine, 75 litres of amphetamine base, over 1,400 litres of various undisclosed precursors and two tableting machines.

74. Authorities in Lebanon reported the dismantling of an illicit amphetamine laboratory in 2012 and the seizure of 92 litres of amphetamine base and 13 litres of P-2-P. More than 5 tons of caffeine were also seized, an indication of the scale of the illicit manufacturing operation. The source of the chemicals and points of diversion were not reported to the Board. In September 2012, an incident involving a foiled attempt to smuggle drug manufacturing equipment from China into Lebanon was communicated via PICS.

75. The European Commission reported the outcome of an investigation conducted jointly by the authorities of Germany and the Netherlands involving phenylacetic acid imported from India and destined for Germany. A total of 11 tons of the substance were destined for a German company. Subsequent investigation by the authorities resulted in 6 tons of phenylacetic acid and 2.5 tons of other chemicals being seized in Germany. In addition, 5 tons of phenylacetic acid were also seized in Rotterdam, Netherlands. The investigation concluded that the chemicals had been diverted for use in illicit amphetamine manufacture in Poland.

76. Forensic profiling of seized methamphetamine in the United States shows that nearly all of the methamphetamine seized and analysed in that country has been manufactured using P-2-P-based methods. In the second quarter of 2012, 94 per cent of samples tested had been manufactured using P-2-P-based methods, a significant increase over the figure for 2010 (69 per cent). In 2010, record seizures of methamphetamine were reported by Mexico (12.9 tons) and the United States (8.7 tons); that, combined with significant seizures of precursor chemicals in Mexico (see para. 91 below), suggests that illicit methamphetamine manufacture has increased. That is also evidenced by the retail price per pure gram of methamphetamine in the United States,

which in 2011 was at the lowest level ever recorded (\$123 per pure gram). The price reflects greater market availability, resulting from a combination of increased large-scale P-2-P-based manufacture and trafficking from Mexico and increased small-scale domestic manufacture in the United States, coupled with lower illicit demand in the United States (reflected in historic lows in the incidence and prevalence of methamphetamine use among the general population). Sustained low prices, however, may fuel demand in the near term, given the high potency and purity of methamphetamine at the retail level. And that could increase the number of incidents of hospitalization due to problem drug use and overdose.

4. 3,4-Methylenedioxyphenyl-2-propanone and piperonal

77. There is little legitimate use for 3,4-MDP-2-P, and subsequently little international trade in the substance. The opposite is true for piperonal. Both 3,4-MDP-2-P and piperonal can be used in the illicit manufacture of 3,4-methylenedioxymethamphetamine (MDMA, commonly known as “ecstasy”) and its analogues. Seizures of MDMA have been declining for several years — particularly in Europe — but there are now indications that MDMA may once again be returning to illicit drug markets. Few Governments have a legitimate need for the import of 3,4-MDP-2-P, and those which do report minimal amounts: just five Governments need more than 1 kg of the substance per year (see annex II). Governments are not requested to provide the Board with their annual legitimate requirements for the import of piperonal.

Licit trade

78. During the reporting period, only one shipment of 1 litre of 3,4-MDP-2-P was reported through the PEN Online system, while 541 shipments of piperonal totalling 1,831 tons were reported. Fourteen Governments informed the Board of an annual legitimate requirement for the import of 3,4-MDP-2-P totalling 133 kg annually, while 87 indicated that they had no legitimate need for the substance.

Trafficking

79. Only three countries — Australia, Canada and Lithuania — reported on form D for 2011 the seizure of 3,4-MDP-2-P (total: only 124 litres). The seizure of piperonal was reported by the United Kingdom (10 kg) and three other countries; and seizures of insignificant amounts of piperonal were reported by Australia, Lithuania and Mexico.

80. During the reporting period, a single seizure of piperonal was communicated via PICS. In January of 2012, the Government of the Philippines seized 1 kg of piperonal after successfully conducting a controlled delivery operation involving international mail. The seized shipment of piperonal was part of a series of shipments that had arrived from China and had been mislabelled as sodium tungstate. The Board encourages Governments to conduct controlled deliveries and backtracking investigations of shipments of precursors and to communicate the results of those efforts via the existing mechanisms of Project Prism and Project Cohesion.

5. Safrole, safrole-rich oils and isosafrole

Licit trade

81. During the reporting period, the Board was informed of 56 shipments of safrole, including in the form of safrole-rich oils, with a total volume of 176,200 litres. About 80 per cent of the trade in safrole involved safrole in the form of safrole-rich oils, while only two shipments of isosafrole (1 litre each) were notified via PEN Online. There were no suspended shipments of isosafrole communicated via the PEN Online system, again reflecting the limited international trade in the substance. Governments are not required to provide the Board with their annual legitimate requirements for the import of those substances.

Trafficking

82. Seizures of safrole and safrole-rich oils, after declining for several years, rebounded in 2011, as nine countries used form D to report seizures of those substances totalling 17,122 litres. Australia, Cambodia, Malaysia, Mexico and the United States each reported seizing more than 2,000 litres of those substances, while smaller amounts were reported to have been seized by Belgium, Canada, Hungary and the Netherlands. Several countries in East and South-East Asia — where a significant amount of legitimate production occurs — were reported to be sources of the substances. Australia reported on form D for 2011 that trace amounts of isosafrole had been seized.

83. Cambodia has continued to seize significant amounts of safrole and safrole-rich oils. In 2011, Cambodian authorities seized 2,058 litres of those substances in the Cardamom mountain area, which had been destined for neighbouring Thailand and Viet Nam. The harvesting and exporting of safrole-rich oils are prohibited in Cambodia.

84. Malaysian authorities dismantle laboratories illicitly manufacturing amphetamine-type stimulants, in particular MDMA. In 2011, they dismantled three MDMA

laboratories and seized 7,675 litres of safrole. The source of the safrole was not reported.

85. Australian authorities dismantled an organized crime syndicate in Sydney and made the largest seizure of safrole in Australian history: more than 2,800 litres of low-concentration safrole oil (equivalent of about 288 litres of pure safrole), misdeclared as liquid hair and cleaning products originating in China.

86. The Board is also aware of a single seizure made by Belgian customs authorities of almost 10,000 litres of safrole-rich oil arriving in a container from Thailand and destined for the Netherlands. After several years of declining seizures and purity of MDMA tablets in large European markets such as the Netherlands, Spain and the United Kingdom, data suggest that the availability of MDMA in Europe has increased.

6. Non-scheduled substances and trends in illicit manufacture of amphetamine-type stimulants

87. Decreases in diversions of, or seizures in, traditional precursors — such as various ephedrines and 3,4-MDP-2-P — have been observed by the Board over the past several years, yet the availability of drugs such as methamphetamine and, more recently, MDMA appear to be on the increase. This apparent contradiction is attributable to: increased international control, which has resulted in shipments of traditional precursors being halted before they can be diverted, thus preventing them from being seized; trafficking routes shifting to more vulnerable regions with weak or non-existent precursor control mechanisms; increased diversion of under-regulated pharmaceutical preparations and challenges in monitoring and reporting pharmaceutical preparations; and traffickers relying more on non-scheduled chemicals. In its 2011 report on precursors, the Board identified the uptake in alternative precursors used in illicit manufacture as being largely region-specific. However, there are now indications that new chemicals previously identified in one region are also being used in others.

88. *alpha*-Phenylacetoacetonitrile (APAAN), a non-scheduled substance that can be easily converted into P-2-P at a ratio of about 1.4 to 1, continues to be the preferred substitute used in P-2-P-based illicit amphetamine laboratories in Europe, and there are indications that its use is spreading. In 2011, three European countries reported on form D that they had seized shipments of APAAN totalling more than 3.5 tons; the intended destination of all the shipments appears to have been the Netherlands. Authorities in the Netherlands seized eight shipments of APAAN totalling 2,810 kg in 2011 and have continued seizing APAAN in 2012. Between April and October 2012,

authorities of Belgium, Bulgaria, the Netherlands and Romania communicated via PICS 17 incidents involving 13.6 tons of APAAN; in all cases, the substance originated in China. The Board understands that the authorities of the countries concerned are fully cooperating with each other in order to address this significant development.

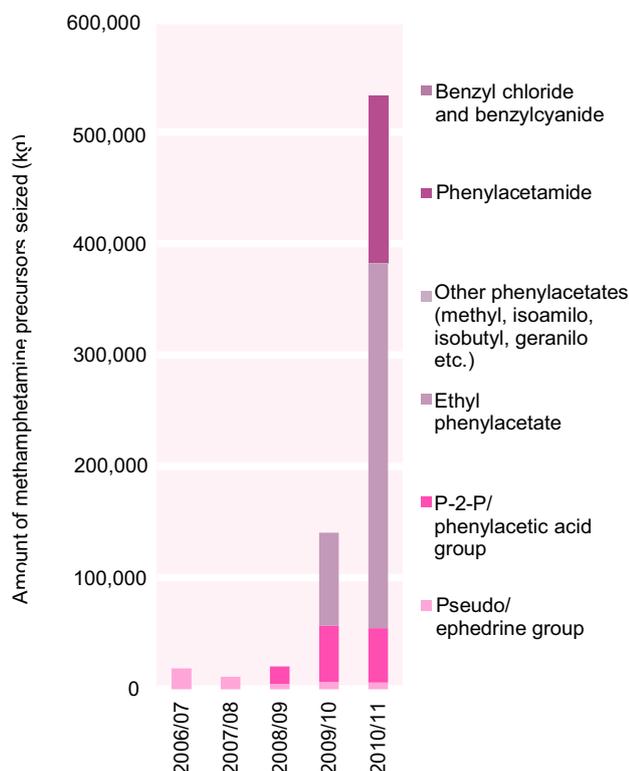
89. In 2012, Canada communicated via PICS the seizure of two shipments of APAAN — the first of such cases in the Americas known to the Board. The two seized APAAN shipments, totalling 6.7 tons, had originated in China. Although in Europe it has been used for the illicit manufacture of amphetamine, APAAN can also be used for the illicit manufacture of methamphetamine, which is more commonly encountered in Canada. The increased trafficking in APAAN, together with the increasing geographical area in which seizures of the substance have been made, may be attributable to its low cost compared with P-2-P.

90. Criminal organizations trafficking in precursor chemicals are becoming increasingly large, resourceful, well organized and adaptable, capable of circumventing the growing number of control measures that have been introduced. As highlighted in the Board's 2011 report on precursors, significant amounts of ethyl phenylacetate, a non-scheduled derivative of phenylacetic acid, were reported seized during Operation PAAD, predominately in Mexico, but also in neighbouring Belize, El Salvador, Guatemala and Nicaragua. On form D for 2011, Mexico reported seizing 369 tons and 117,000 litres of ethyl phenylacetate and El Salvador reported seizing 157 tons of the substance. Mexico also reported seizing 313,000 litres of methyl phenylacetate — another ester of phenylacetic acid — and lesser amounts of other esters. Although the frequency of the seizures of esters of phenylacetic acid and the amounts seized have decreased since then, the scale of legitimate trade in those substances and the ease with which they can be converted into phenylacetic acid warrant continued awareness by the industries concerned and national authorities. In Mexico, the substances have been under national control since November 2009.

91. Nearly all of the precursors seized in Mexico in 2007 were ephedrines-based; in 2011, the proportion of seized ephedrines-based precursors dropped precipitously to less than 1 per cent (see figure II). The decrease is the result of increased seizures of a variety of non-scheduled precursor chemicals other than ephedrines, including phenylacetamide and benzylchloride (300 tons and 77,000 litres, respectively, reported on form D for 2011) and small amounts of 2-phenylethanol. The experimenting in the use of non-traditional non-scheduled chemicals is likely a consequence of stricter controls over more "traditional" precursors, including esters of phenylacetic acid. Based on

seizures of precursors expressed as illicitly manufactured high-potency *d*-methamphetamine, the amount of drugs prevented from being illicitly manufactured has increased 20-fold since 2006.¹⁹

Figure II. Seizures of scheduled and non-scheduled precursors in Mexico, 2006-2011



Sources: Form D and, for 2006, Inter-American Drug Abuse Control Commission, *Mexico: Evaluation of Progress in Drug Control 2007-2009* (Washington, D.C., 2010).

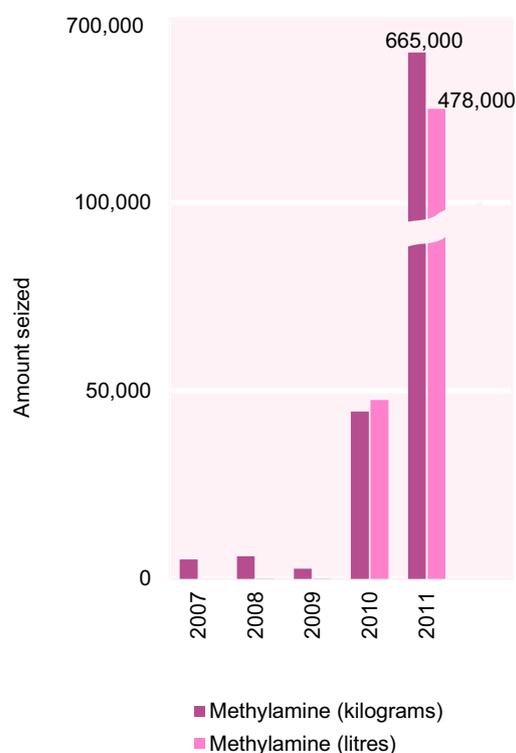
Notes: Values based on two-year moving average of scheduled and non-scheduled precursors reported seized.

92. Styrene is an industrial starting material for the production of plastics (polystyrene), but it can also be used in the synthesis of phenylacetic acid. In June 2012, authorities in Mexico dismantled an illicit methamphetamine laboratory where 5,600 litres of styrene were seized, along with other chemicals. That was the first report received by the Board of a large amount of styrene being identified as being used in illicit methamphetamine

manufacture. (In 2007, there was a report about a smaller amount of styrene being seized in Australia.) Governments should be aware that as traditional precursors of amphetamine-type stimulants come under closer scrutiny, it may be more common for trafficking to turn to alternative substances such as styrene use in the illicit manufacture of amphetamines.

93. Methylamine, together with P-2-P (or 3,4-MDP-2-P), can be used in the illicit manufacture of methamphetamine (or MDMA). In 2011, four Governments reported seizures of methylamine totalling 665 tons and 478,000 litres, the highest levels ever reported to the Board (see figure III). Mexico accounted for 56 per cent of the seizures of methylamine — 597 tons and 70,600 litres (combined totals seven times higher than in the previous year); it was followed by the United States, which accounted for 38 per cent of the seizures. Between January and October 2012, the Board was informed of six seizures of methylamine in four countries in Central America and North America, totalling more than 130,000 litres; 90 per cent of the seized methylamine originated in China. Additional incidents were communicated via PICS.

Figure III. Seizures of methylamine reported by Governments on form D, 2007-2011



¹⁹ This assumes that all seized precursors would have been used in illicit drug manufacture. Conversion factors for scheduled precursors are provided in annex IV of the present publication; conversion factors for non-scheduled substances were calculated assuming yields of 30-65 per cent in practice, depending on the substance. The yield for non-ephedrine-based methamphetamine was calculated at a racemic ratio of 50 to 50.

94. The cyclic emergence of non-scheduled substances, as a reaction by illicit drug manufacturers to Governments' increased awareness of the diversion of commonly used precursors (and the resulting strengthened controls over those precursors) is part of a "cat-and-mouse" phenomenon, involving different substances at different times in different regions. It has been observed since the beginning of international precursor control. Enhanced, comprehensive cooperation with industry to identify and investigate suspicious orders is a key element in efforts to prevent diversion of precursors. When substitute chemicals are identified (stopped or seized) in international trade, it is important to communicate widely the reasons why the shipment was stopped or seized so as to alert the relevant authorities — nationally and globally — so that they can identify future shipments routed through different border crossings, ports or countries. Similarly, detailed information on seizures of substitute chemicals in illicit laboratories provides an opportunity for follow-up investigations, identifying those involved and preventing future diversions. The Board therefore urges all Governments to improve the extent, frequency and level of detail of shared information, also in relation to non-scheduled chemicals.

B. Substances used in the illicit manufacture of cocaine

1. Potassium permanganate

95. Potassium permanganate — the common oxidizing agent used in the illicit manufacture of cocaine hydrochloride — is one of the most commonly traded substances in Table I of the 1988 Convention. While there is little licit international trade in potassium permanganate with coca-producing countries, that subregion continues to account for a large proportion of global seizures of the precursor. According to data on legitimate trade and the results of backtracking investigations, alternative chemicals are utilized instead of potassium permanganate for illicit cocaine manufacture or potassium permanganate is diverted from domestic distribution and subsequently smuggled into illicit channels. However, potassium permanganate is also being illicitly manufactured, and that, together with the use of other oxidizers and the shifting of cocaine processing to more vulnerable regions, has resulted in far fewer seizures of potassium permanganate than before.

Licit trade

96. During the reporting period, 1,631 shipments of potassium permanganate, totalling 27,900 tons, were reported through the PEN Online system. Thirty-one

countries exported potassium permanganate to 126 countries. China was the largest exporter, accounting for more than three quarters of notifications; it was followed by the United States, India and Hong Kong, China. As in previous years, the Islamic Republic of Iran continued to be the major importer of the substance; it was followed by Thailand, Belgium, Brazil and the Republic of Korea.

97. The three coca-producing countries in South America continue to play an insignificant role in the overall trade in potassium permanganate notified through the PEN Online system, accounting for less than 10 per cent of global imports of the substance. This supports the conclusion that alternative chemicals, and smuggled or illicitly manufactured potassium permanganate have been used in the illicit manufacture of cocaine.

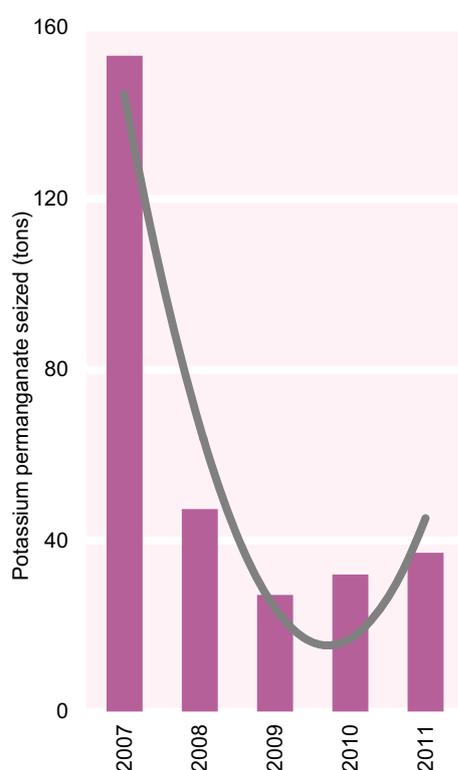
Trafficking

98. Fifteen Governments reported on form D seizures of potassium permanganate in 2011; those seizures totalled 37 tons (see figure IV). As in previous years, Colombia reported the greatest amount seized (accounting for 65 per cent of the total); it was followed by the Plurinational State of Bolivia with 27 per cent (the highest amount of potassium permanganate ever reported seized in that country). Of the total volume of potassium permanganate reported seized in 2011, South American countries (almost exclusively the coca-producing countries) accounted for 99 per cent. It is estimated that approximately 12-25 per cent of the potassium permanganate available each year for illicit use in the coca-producing countries is seized.²⁰

99. Coca production occurs primarily in Bolivia (Plurinational State of), Colombia and Peru, which also account for the bulk of the world's dismantled illicit cocaine laboratories.²¹ The number of cocaine paste, base and hydrochloride crystallization laboratories reported dismantled remained relatively unchanged in Colombia between 2007 and 2011, but the number has nearly doubled in both Bolivia (Plurinational State of) and Peru (see table 3).

²⁰ Revised estimates based on updated potassium permanganate seizures for the period 2007-2011 and revised conversion factors (see annex IV to the present publication; and *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2011 on the Implementation of Article 12 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988* (United Nations publication, Sales No. E.12.XI.4), table 1).

²¹ Illicit cocaine-processing laboratories have also been dismantled in Argentina, Chile, Ecuador, Honduras, Spain and Venezuela (Bolivarian Republic of), among others.

Figure IV. Seizures of potassium permanganate reported by Governments, 2007-2011

100. Between 60 and 80 per cent of the potassium permanganate seized in Colombia is estimated to have been obtained through illicit manufacture and not diverted from international trade channels. Between 2002 and 2011, there were 91 illicit potassium permanganate laboratories dismantled in Colombia (see figure V), the only country where such activity is reported. The starting material typically used is manganese dioxide, a common ore of manganese, which is converted to potassium manganate and further to potassium permanganate.

101. While illicit cocaine laboratories have been reported in nearly each of the 32 departments in Colombia, illicit potassium permanganate laboratories have only been reported in the capital and 13 departments since 2002. Departments with a greater number of dismantled laboratories processing cocaine base and paste are typically those where more laboratories illicitly manufacturing potassium permanganate are located. In 2011, seven laboratories for the illicit manufacture of potassium permanganate were dismantled, the highest number since 2006.

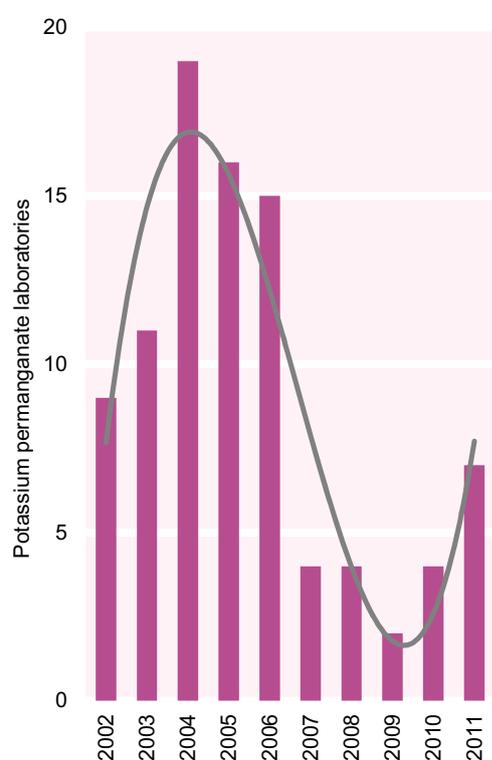
Table 3. Illicit cocaine-processing laboratories dismantled in coca-producing countries, by type of laboratory, 2007-2011

Country	Laboratory type	2007	2008	2009	2010	2011
Bolivia (Plurinational State of)	Cocaine paste, base and crystallization	3 087	4 988	4 864	5 922	5 252
Colombia	Cocaine paste and base	2 186	3 147	2 670	2 334	2 200
	Cocaine crystallization	285	296	285	262	200
Peru	Cocaine paste and base	649	1 205	1 217	1 296	..
	Cocaine crystallization	16	19	25	21	..
Total	Cocaine paste, base and crystallization	6 223	9 655	9 061	9 835	..

Sources: United Nations Office on Drugs and Crime and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivo de Coca 2011* (2012); United Nations Office of Drugs and Crime and Colombia, *Colombia: Censo de Cultivos de Coca 2011* (2012); and United Nations Office of Drugs and Crime and Peru, *Peru: Monitoreo de Cultivos de Coca 2010* (2011).

Note: Two dots (..) indicate that data are not available.

Figure V. Illicit potassium permanganate laboratories dismantled in Colombia, 2002-2011



Source: Colombia, Ministerio de Justicia y del Derecho, Observatorio de Drogas de Colombia, 2012.

2. Other chemicals used in the illicit manufacture of cocaine

102. Acids and solvents are required at various stages of nearly all illicit drug manufacture. The majority of the world's reported seizures of some acids and solvents in

Table II of the 1988 Convention occur in the coca-producing countries in the Andean subregion. Between 2007 and 2011, Bolivia (Plurinational State of), Colombia and Peru accounted for on average from about one third to nearly two thirds of global seizures of ethyl ether, hydrochloric acid, methyl ethyl ketone and sulphuric acid. Almost 90 per cent of global seizures of acetone were also reported in those countries (see table 4 and annex VIII to the present publication).

103. Acids and solvents in Table II of the 1988 Convention are reported to be smuggled and also illicitly manufactured. Panama used form D to inform the Board in 2011 of a single multi-substance seizure of acetone, hydrochloric acid, toluene and acetic acid totalling 3.6 tons; the substances had been hidden in a shipping container originating in Italy. Ecuador informed the Board on form D for 2011 of attempts of illicit manufacture of hydrochloric acid.

104. Illicit cocaine-processing laboratories, especially cocaine crystallization laboratories, are increasingly being reported along established trafficking routes outside of Bolivia (Plurinational State of), Colombia and Peru. The Board is aware of cocaine crystallization occurring in Honduras, Spain and Venezuela (Bolivarian Republic of). In August 2012, Honduran authorities reported dismantling a large cocaine laboratory near their country's border with Guatemala. (They had dismantled a similar laboratory in March 2011.) In 2012, two incidents communicated via PICS involved the seizure, at a seaport in Guatemala of 20 tons of sodium sulfate — used as a drying agent in the illicit manufacture of cocaine — and 35 tons of sodium carbonate, a common alkali. As processing cocaine base into hydrochloride can occur anywhere along trafficking routes, the Board urges all Governments to pay particular attention to shipments of chemicals that can be used in the illicit manufacture of cocaine.

Table 4. Acids and solvents in Table II of the 1988 Convention: percentage of global seizures reported by coca-producing countries, 2007-2011

Solvent or acid	2007	2008	2009	2010	2011	Average for the period 2007-2011
Acetone	91	93	90	85	79	88
Ethyl ether	32	83	15	13	8	30
Hydrochloric acid	55	47	57	45	37	48
Methyl ethyl ketone	74	68	53	51	7	50
Sulphuric acid	66	58	77	64	21	57
Toluene	41	12	6	52	35	29

Source: Form D and other Government sources; see also annex VIII to the present publication.

105. Sodium metabisulfite is a chemical anti-oxidant associated with the illicit manufacture of cocaine. Three countries — Bolivia (Plurinational State of), Ecuador, Venezuela (Bolivarian Republic of) — used form D for 2011 to report the seizure of 6.5 tons of the substance. In April 2012, the Government of Honduras reported seizing a container originating in Germany after a routine inspection identified 980 sacks containing 24.5 tons of the substance destined for a company that had not been authorized to import the substance. This is the largest amount ever reported seized to the Board.

C. Substances used in the illicit manufacture of heroin

1. Acetic anhydride

106. Acetic anhydride — used primarily in heroin manufacture but recently also in the illicit manufacture of P-2-P and subsequently methamphetamine — is one of the most frequently traded substances in Table I of the 1988 Convention. Currently available information indicates that diversion of acetic anhydride from international trade channels is uncommon. Afghanistan — the epicentre of global heroin manufacture — has no legitimate trade in or manufacture of acetic anhydride; each year, hundreds of thousands of litres of the substance are diverted from domestic trade channels in other countries and subsequently smuggled into Afghanistan. Heroin manufacture also occurs in countries of the so-called Golden Triangle area of South-East Asia; all countries in that area except China report few if any seizures of acetic anhydride. Increased seizures of acetic anhydride in and around Mexico appear to be largely related to the increased use of P-2-P in the manufacture of methamphetamine, rather than any substantial increases in heroin manufacture. Less than 17 per cent of the acetic anhydride diverted for illicit heroin manufacture is seized each year.²²

Licit trade

107. Figures on licit trade in acetic anhydride during the reporting period are comparable with those in earlier years. On average, there are fewer than 30 exporting countries,

exporting to slightly fewer than 100 importing countries (see box 1 and figure VI).

108. The number of identified diversion attempts involving acetic anhydride traded internationally continued to be low during the reporting period, except in a few countries in West Asia. Significant seizures brought to the attention of the Board in recent years have often occurred in countries or regions where the control mechanisms are weak, particularly in certain countries with exemptions related to amounts and/or operators in legitimate trade, especially, end-user registration.

109. In view of the insufficient information on patterns of licit trade in acetic anhydride and the scope of its domestic control, the Board encourages all Governments, in particular those of major trading countries, to inform it of any measures taken at the national level to prevent diversion of acetic anhydride, in particular from domestic trade and distribution channels, into the illicit traffic. The Board also encourages the Governments of all countries manufacturing the substance to report details of such manufacture through the established communication channels.²³ This information would assist Governments, and the Board, in identifying and addressing any deficiencies in the current control system.

Box 1. Facts and figures on acetic anhydride manufacture and trade

Based on estimated amounts of acetic anhydride required for the illicit manufacture of heroin each year (between 600,000 and 1,500,000 litres), less than 1 per cent of legitimate trade would be needed to supply the illicit heroin manufacture in the world.^a

Only six countries officially reported the licit manufacture of acetic anhydride, by a total of 44 companies; other sources of information suggest considerably larger numbers of countries and companies. For example, a recent survey on acetic anhydride conducted by the Government of the United States found that acetic anhydride was licitly manufactured in 17 countries, by more than 90 companies.

The capacity of individual countries, and companies, to manufacture acetic anhydride is largely unknown.

Global manufacture of acetic anhydride is estimated by the private sector to be approximately 2.13 billion litres

²² Revised estimates based on updated acetic anhydride seizures for the period 2007-2011 and revised conversion factors (see annex IV to the present publication; and *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2011*, para. 124).

²³ Annual report questionnaire. Available from www.unodc.org/unodc/en/commissions/CND/10-GlobalData.html.

annually, about two thirds of which are used directly by the manufacturing companies themselves — the remainder is available for domestic and international trade.

In the past five years, the Governments of about 60 countries have informed the Board of their annual legitimate requirements for acetic anhydride, totalling on average about 330 million litres annually.

In 2011, 25 exporting countries used PEN Online for more than 1,500 proposed shipments of acetic anhydride, amounting to 336 million litres, destined for about 340 companies in 94 importing countries. About half of the 340 companies ordered acetic anhydride in amounts totalling less than 2,000 litres, and about 25 per cent ordered it in amounts exceeding 100,000 litres; about 20 per cent of the companies imported the substance in 2011 for the first time, typically in amounts of less than 2,000 litres (see figure VI).

The amounts of the acetic anhydride reported by Governments of importing and exporting countries on form D and through pre-export notifications suggest that sizeable amounts of acetic anhydride appear to be exported every year to the proposed importing countries without being pre-notified via the PEN Online system. In addition, according to data provided on form D, the amounts of the substance imported are considerably lower than the amounts of the substance exported.

The above-mentioned figures suggest that the magnitude and patterns of legitimate trade in acetic anhydride still need further analysis.

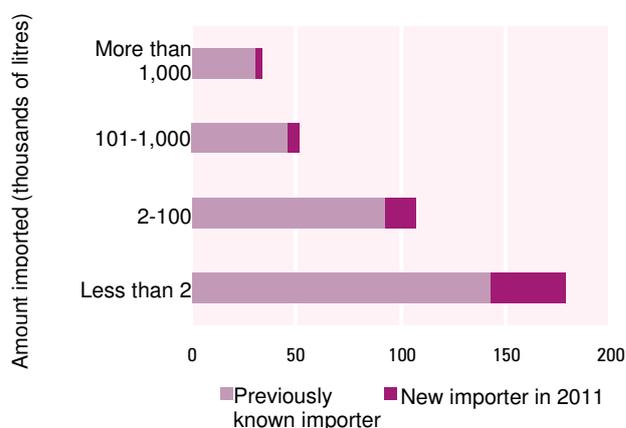
^a Revised estimates based on updated acetic anhydride seizures for the period 2007-2011 and revised conversion factors (see annex IV to the present publication and *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2011*, para. 124).

Trafficking

110. In 2011, global seizures of acetic anhydride, as reported by 17 Governments on form D, amounted to 198,000 litres. The following six countries reported seizing acetic anhydride in amounts exceeding 1,000 litres: Mexico (76,625 litres), Afghanistan (68,245 litres), the United States (24,713 litres), China (16,946 litres),

Slovakia (6,020 litres)²⁴ and Turkey (3,706 litres). Between 2007 and 2011, the top five countries reporting seizures of acetic anhydride were Afghanistan (140,398 litres), Slovenia (92,600 litres), Mexico (81,900 litres), Hungary (63,600 litres) and Turkey (51,666 litres). Most seizures of acetic anhydride in countries other than Afghanistan that have been brought to the attention of the Board involved acetic anhydride believed to have been diverted from domestic distribution channels.

Figure VI. New and known companies importing acetic anhydride as notified via the Pre-Export Notification Online (PEN Online) system, 2011



Note: “New importer” may reflect new physical locations or the renaming or merging of known companies.

111. Since the Board’s 2011 report on precursors was published, the cooperation of — and reporting by — the Government of Afghanistan in the area of precursor control has improved. The Government of Afghanistan provided on form D missing information on seizures of acetic anhydride from 2008 to 2011. According to that information, the following amounts of acetic anhydride were seized in the country: 12,275 litres in 2008; 36,618 litres in 2009; 23,260 litres in 2010; and 68,245 litres in 2011. In addition, the competent national authorities of Afghanistan registered to use PICS and are now actively communicating incidents through the system. The largest single seizure of acetic anhydride between January and October 2012 was confirmed and communicated through PICS; it involved the seizure of 10,000 litres of acetic anhydride that had been concealed in a container transported from the Islamic Republic of Iran in July.

²⁴ The seizure was reported as part of a controlled delivery operation involving Hungary (see *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2011*, para. 122).

Box 2. What the price of a precursor on the black market says about an invisible market

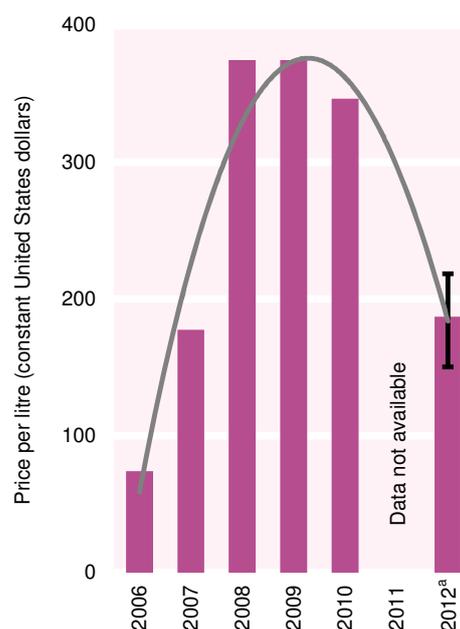
Changes in the black market price of precursor chemicals, like changes in the street price of drugs, can provide valuable illicit market information. A 2012 review by the Board found that few Governments systematically collect information and monitor illicit precursor prices. The Government of Afghanistan is an exception. The Ministry of Counter Narcotics of Afghanistan, along with UNODC, collects and reports on illicit acetic anhydride prices from around the country. After a sharp rise between 2006 and 2008, the price for illicitly obtained acetic anhydride remained relatively stable until 2010, when it began to drop (see figure VII). Between May 2010 and May 2012 prices declined from about US\$ 416 per litre to US\$ 165-232, a range estimated on the basis of the perceived quality of the substance. In contrast, acetic anhydride obtained from legitimate wholesale sources costs roughly US\$ 1.5 per litre. Global opium production followed a similar pattern, with sharp increases between 2006 and 2008, then declined in 2010 due to an opium poppy disease. The more recent decline in price indicates the possibility that supplies of, or access to, acetic anhydride may have increased in Afghanistan.

112. Countries that border, or are in close vicinity of, Afghanistan, are at higher risk of being targeted by traffickers supplying acetic anhydride for illicit heroin manufacture in that country. That applies particularly to China, India, Iran (Islamic Republic of) and Uzbekistan — countries that manufacture acetic anhydride or countries in which a significant amount of the substance is available because of domestic or international trade.

113. Iraq has continued to be targeted by traffickers attempting to obtain acetic anhydride at points as close as possible to the Afghan borders although to a lesser extent than in previous years. In January 2012, Iraqi authorities objected to a shipment of 32 tons of acetic anhydride from China, involving a company that had neither a licit need nor an import authorization for the substance. There is no information on whether or not any law enforcement investigations were carried out into this and similar incidents in the past. The Board continues to be concerned that the trafficking organizations operating in the country may have continued their illicit activities and diversion attempts involving Iraq or other countries in West Asia. The Board therefore reiterates its request to Governments of countries that export acetic anhydride to unknown companies in Iraq to require authorization before releasing the shipment.

114. Although illicit opium poppy cultivation occurs in Mexico, seizures of acetic anhydride in the country have been primarily linked with the illicit manufacture of P-2-P, a precursor of methamphetamine, rather than with the illicit manufacture of heroin, which also occurs. In Mexico, reported seizures of acetic anhydride increased exponentially in the five-year period 2007-2011 — from 10 to 76,600 litres (see figure VIII).

Figure VII. Price of acetic anhydride on the black market in Afghanistan, 2006-2012



Sources: Ministry of Counter Narcotics of Afghanistan and the United Nations Office on Drugs and Crime.

^a Data for 2012 are for the period from March to October; values represent the unweighted average of all samples. Error bars represent the average illicit price range based on the perceived quality of acetic anhydride, which were reported beginning in 2012.

115. While seizures are an important indicator of the level of activity of drug trafficking organizations, it is important to note that they are also indicators of known diversions that have been successful. The international precursor control system is primarily aimed at the prevention of diversion. Comparative figures on stopped, suspended or suspicious shipments show that although seizures of acetic anhydride during the period 2008-2011 amounted to 551,000 litres, nearly double that amount — 943,000 litres — was either stopped or suspended (a total of 761,000 litres) or identified as suspicious (182,000 litres) through the PEN Online system (see map 7).

Map 7. Seizures of acetic anhydride reported by Governments on form D and stopped, suspended or suspicious shipments identified via the Pre-Export Notification Online (PEN Online) system, 2008-2011 (As at 1 November 2012)

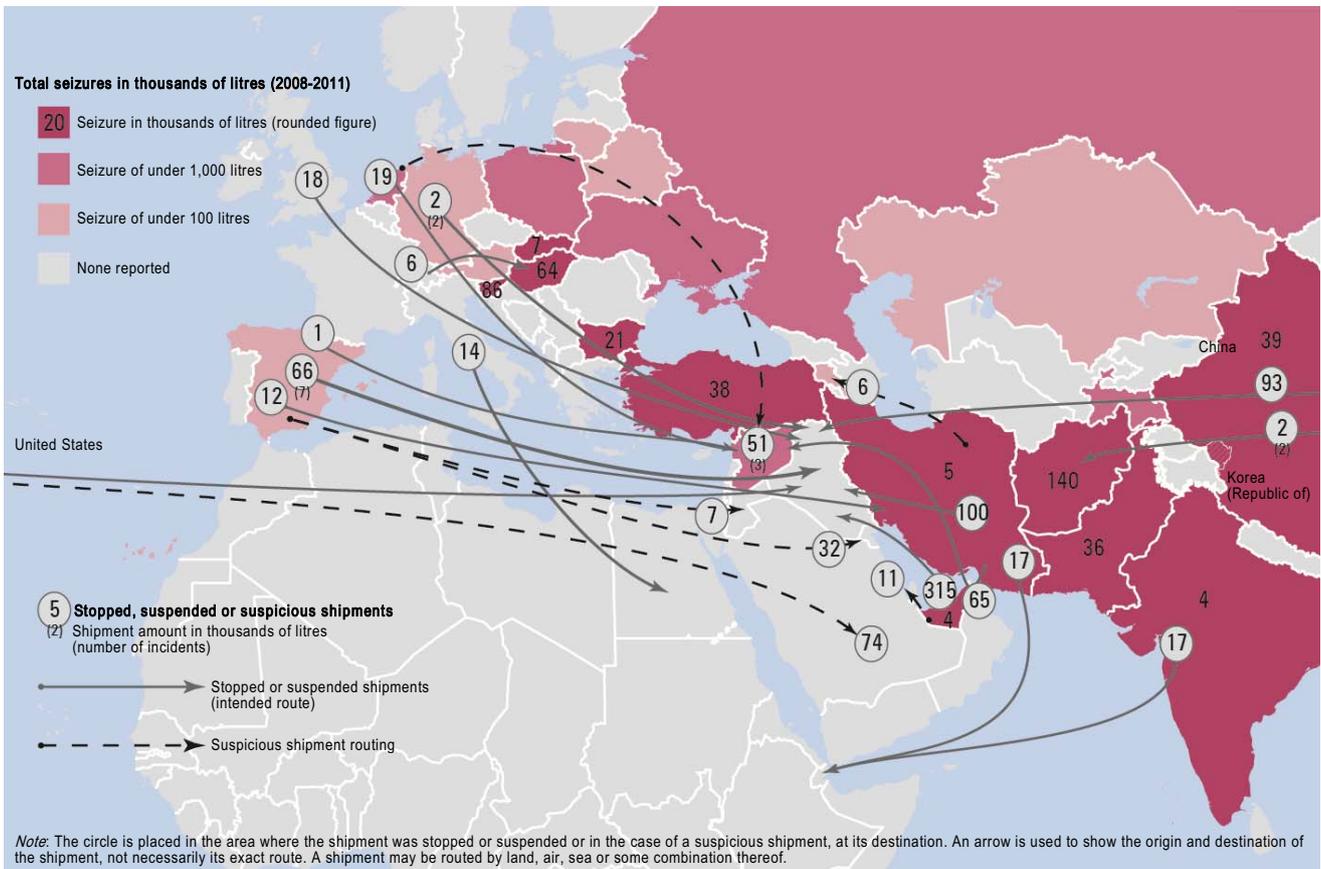
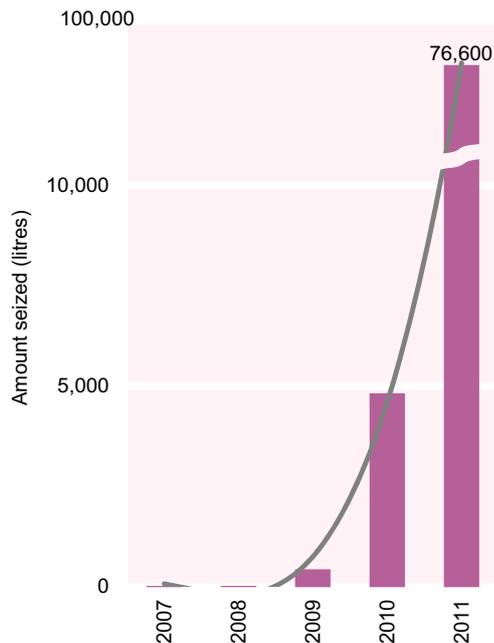


Figure VIII. Seizures of acetic anhydride reported by Mexico on form D, 2007-2011



2. Non-scheduled substances and trends in illicit manufacture of heroin

116. Ammonium chloride is commonly used as part of the extraction of morphine from opium. During the reporting period, three seizures totalling 16.6 tons of ammonium chloride were communicated via PICS. Two of the seizures occurred in Afghanistan in May 2012; one shipment of 16 tons of ammonium chloride was reported seized in the border area with Pakistan. In a seizure communicated in January 2012, 260 kg of the substance was found at an illicit methamphetamine laboratory in Mexico. Mexico reported on form D for 2011 that 1.4 tons of the substance had been seized. The Board wishes to remind all Governments to fully investigate suspicious transactions and seizures of non-scheduled substances and report the results of those investigations to the Board, in order to improve the understanding of the substances actually being used in illicit heroin manufacture and their sources, which can then be used as a basis for devising adequate responses.

D. Substances used in the illicit manufacture of other narcotic drugs and psychotropic substances

1. Ergot alkaloids and lysergic acid

Licit trade

117. Ergot alkaloids (ergometrine and ergotamine and their salts) are used in the treatment of migraines and as an oxytocic in obstetrics, but there is comparatively limited international trade in these substances. During the reporting period, 384 shipments of ergot alkaloids totalling 1,620 kg were reported; 17 countries exported to 50 importing countries. In addition, there were 6 shipments of lysergic acid totalling 17 kg during the reporting period.

118. A shipment containing a large amount (95 kg) of ergotamine sent from Chile to Honduras was stopped after Honduran authorities informed the Board that the import authorization had been issued for only 133 g of the substance. During the reporting period, the median weight of a shipment of ergotamine was just 1 kg.

Trafficking

119. Seizures of ergot alkaloids and lysergic acid are rare and typically involve very small amounts of the substance that do not appear to have been diverted from international trade. In 2011, only Australia (4 g) provided on form D information on seizures of ergot alkaloids; the seized substance originated in Singapore and South Africa. Three Governments provided information on seizures of lysergic acid: India (62.4 g), Ireland (44.9 g) and the United States (2.5 g). Ireland identified the Netherlands as the source of the lysergic acid seized in three of the four seizures reported.

2. *N*-Acetylanthranilic acid and anthranilic acid

Licit trade

120. *N*-Acetylanthranilic acid is used in the manufacture of pharmaceuticals, plastics and fine chemicals, while anthranilic acid is a chemical intermediate used in the manufacture of dyes, pharmaceuticals and perfumes and is also used in the preparation of bird and insect repellents. However, both are also used in the illicit manufacture of methaqualone, a sedative-hypnotic. During the reporting period, eight shipments of *N*-acetylanthranilic acid, totalling 2.4 kg, were reported; three countries exported the substances to five importing countries. In addition, there were 263 shipments of anthranilic acid totalling 1,030 tons during the reporting period.

Trafficking

121. Seizures of either *N*-acetylanthranilic acid or anthranilic acid are not commonly reported. Since 2006, only seven Governments have reported such seizures on form D, the largest seizure being made in India: 675 kg of anthranilic acid seized in 2006. In 2011, the Government of Sweden reported dismantling an illicit methaqualone laboratory, seizing small amounts of anthranilic acid, the origin which was not reported. South Africa regularly reports the dismantling of illicit methaqualone laboratories; five such laboratories were reported to have been dismantled in 2010 (the most recent year for which data were reported), and some of them were capable of illicitly manufacturing the substance on an industrial scale.

E. Non-scheduled substances

122. *gamma*-Butyrolactone (GBL) is a substance used in the illicit manufacture of *gamma*-hydroxybutyric acid (GHB) and is also converted into GHB in the body when ingested. GBL is also one of several "date-rape drugs". Governments are reporting seizures of GBL with increasing frequency and in increasing amounts. The World Customs Organization reports that seizures of GBL by customs authorities increased steadily between 2009 and 2011, with Finland reporting the single largest seizure of the substance: a seizure of 1 ton of the substance in 2011 originating in China.²⁵ Between January and October 2012, seizures of GBL in Bulgaria, Canada and the Netherlands were communicated via PICS; the seizures totalled more than 45,000 litres. In January 2012, Canadian authorities seized an air cargo consignment of 2,900 litres of GBL. In September 2012, the authorities of the Netherlands seized 42,000 litres of GBL from a warehouse, representing the single largest seizure of the substance ever reported to the Board. In both incidents, the shipments had originated in China. Since 2007, GBL has been on the limited international special surveillance list of non-scheduled substances.

123. 'Hydroxylamine' is the common name for an immediate precursor used to manufacture ketamine, an anaesthetic commonly used in human and veterinary medicine. Ketamine is increasingly being abused, particularly in countries in East and South-East Asia. China reported on form D that 8,710 kg of 'hydroxylamine' were seized in both 2010 and 2011. Simply heating 'hydroxylamine' converts it almost completely to ketamine. After controls over 'hydroxylamine' were strengthened,

²⁵ World Customs Organization, *Customs and Drugs Report 2011* (Brussels, 2012).