

CALTECH PROCEDURE REGARDING CHEMICAL PRECURSORS

INTRODUCTION

Members of the Caltech community requiring use of chemical precursors for research must comply with all applicable laws and regulations, as well as Caltech's policies and procedures. Principal Investigators, staff and students who use chemical precursors for research must be knowledgeable about and follow all applicable procedures, before ordering or using chemical precursors.

Failure to comply with these procedures may result in the loss of privileges to use chemical precursors in research and/or discipline up to and including separation from the Institute. Violations of applicable law and regulations may result in penalties including but not limited to the imposition of fines and/or penalties.

Chemical Precursors

Chemical precursors, as used in this document, are those regulated by the State of California Department of Justice, Office of the Attorney General (CA-DOJ) and the Drug Enforcement Administration (DEA). The substances considered by CA-DOJ and DEA to be chemical precursors are found in [Attachments A \(DEA Lists I and II\)](#) and [B \(California precursor chemicals\)](#), respectively.

The mission of the DEA and the CA-DOJ chemical precursor control programs is to disrupt the illicit production of controlled substances by preventing diversion of chemicals used to make drugs. The illegal production of drugs such as methamphetamine, cocaine, heroin, and MDMA (ecstasy) requires enormous quantities of precursor and essential chemicals. These federal and state programs seek to minimize the regulatory burden on the legitimate chemical industry while instituting effective anti-diversion policies.

Responsibilities

Principal Investigators – Principal Investigators (PIs) who require the use of chemical precursors in their research are responsible for ensuring the proper procurement, storage, use, and disposal of, precursor chemicals. PIs are also responsible for ensuring that their lab personnel understand and implement proper procedures for purchasing, storage, use, and disposal of chemical precursors.

Lab personnel -- Lab personnel using chemical precursors in their research are responsible for properly storing, using, and disposing of, chemical precursors.

Environment, Health and Safety Office (EHS) – EHS is responsible for managing disposal of unused or expired chemical precursors consistent with the Caltech Chemical Hygiene Plan.

Security – Security is responsible for investigating any suspected theft or loss of chemical precursors.

Procedures

Purchasing & Delivery of Chemical Precursors

Chemical precursors currently must be ordered from vendors within the state of California. In-state vendor information can be obtained from Procurement. A minimum 21 day processing period may be required for such purchases to be completed. Sales of iodine are subject to a purchase limitation of 8 ounces per 30 days per individual.

Please contact the Central Controlled Substance Custodian at x 6727 if you receive a Declaration Form or Management Approval Form, or email the form to ControlledSub@caltech.edu.

Manufacturing of Controlled Substances

If any research or other use of chemical precursors, incidentally or by design, generates one or more controlled substances, the Controlled Substances Procedure must be followed. Please contact the Central Controlled Substances Custodian (CCSC) at x6727 immediately.

Storage & Security

Storage of precursors must follow Caltech's chemical storage requirements for the hazard class of the chemical (e.g., flammable, toxic). Also, labs must provide effective controls and procedures to guard against theft or loss of chemical precursors.

Theft or Loss

Theft or loss of any chemical precursors must be reported immediately to Security and/or the Office of Research Compliance. Caltech is required to report in writing to the CA-DOJ within three days after the discovery of any theft or loss. These offices will make the required notification.

Recordkeeping

Each lab must keep invoices for the chemical precursors it purchases for 3 years.

Disposal

Contact EHS for disposal of any unused and/or expired chemical precursors.

Sale of Laboratory Items

As part of the CA-DOJ effort to fight illicit production of such controlled substances as methamphetamine, cocaine, heroin and MDMA (ecstasy) by preventing diversion of chemical precursors, there are specific requirements associated with the sale of any laboratory glassware or apparatus, any chemical reagent or solvent, or combination thereof, where the value of the goods sold (per sale) exceeds \$100. Therefore, no sales of these items may be made without notifying and seeking the assistance of your Division Administrator.

The following are the List I and II Chemical Precursors that are subject to Federal DEA Regulation

LIST I CHEMICALS

CHEMICAL NAME	DEA CHEMICAL NUMBER
(1) Anthranilic acid, its esters, and its salts	8530
(2) Benzyl cyanide	8735
(3) Ephedrine, its salts, optical isomers, and salts of optical isomers	8113
(4) Ergonovine and its salts	8675
(5) Ergotamine and its salts	8676
(6) N-Acetylanthranilic acid, its esters, and its salts	8522
(7) Norpseudoephedrine, its salts, optical isomers, and salts of optical isomers	8317
(8) Phenylacetic acid, its esters, and its salts	8791
(9) Phenylpropanolamine, its salts, optical isomers, and salts of optical isomers	1225
(10) Piperidine and its salts	2704
(11) Pseudoephedrine, its salts, optical isomers, and salts of optical isomers	8112
(12) 3,4-Methylenedioxyphenyl-2-propanone	8502
(13) Methylamine and its salts	8520
(14) Ethylamine and its salts	8678
(15) Propionic anhydride	8328
(16) Isosafrole	8704
(17) Safrole	8323
(18) Piperonal	8750
(19) N-Methylephedrine, its salts, optical isomers, and salts of optical isomers (N-Methylephedrine)	8115
(20) N-Methylpseudoephedrine, its salts, optical isomers, and salts of optical isomers	8119
(21) Hydriodic Acid	6695
(22) Benzaldehyde	8256
(23) Nitroethane	6724
(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)	2011
(25) Red Phosphorus	6795
(26) White phosphorus (Other names: Yellow Phosphorus)	6796
(27) Hypophosphorous acid and its salts (including ammonium hypophosphite, calcium hypophosphite, iron hypophosphite, potassium hypophosphite manganese hypophosphite magnesium hypophosphite and sodium hypophosphite)	6797
(28) N-phenethyl-4-piperidone (NPP)	8332
(29) Iodine	6699
(30) Ergocristine and its salts	8612

LIST II CHEMICALS

CHEMICAL NAME	DEA CHEMICAL NUMBER
(1) Acetic anhydride	8519
(2) Acetone	6532
(3) Benzyl chloride	8570
(4) Ethyl ether	6584
(5) Potassium permanganate	6579
(6) 2-Butanone (or Methyl Ethyl Ketone or MEK)	6714
(7) Toluene	6594
(8) Hydrochloric acid (including anhydrous hydrogen chloride)	6545
(9) Sulfuric acid	6552
(10) Methyl Isobutyl Ketone (MIBK)	6715
(11) Sodium Permanganate	6588

The following chemicals are subject to California Department of Justice Regulation as Chemical Precursors. Please note that the CA-DOJ may revise and add additional chemicals to this list as needed.

California State Department of Justice Chemical Precursor List
(1) Phenyl-2-propanone.
(2) Methylamine.
(3) Ethylamine.
(4) D-lysergic acid.
(5) Ergotamine tartrate.
(6) Diethyl malonate.
(7) Malonic acid.
(8) Ethyl malonate.
(9) Barbituric acid.
(10) Piperidine.
(11) N-acetylanthranilic acid.
(12) Pyrrolidine.
(13) Phenylacetic acid.
(14) Anthranilic acid.
(15) Morpholine.
(16) Ephedrine.
(17) Pseudoephedrine.
(18) Norpseudoephedrine.
(19) Phenylpropanolamine.
(20) Propionic anhydride.
(21) Isosafrole.
(22) Safrole.
(23) Piperonal.
(24) Thionyl chloride.
(25) Benzyl cyanide.
(26) Ergonovine maleate.
(27) N-methylephedrine.
(28) N-ethylephedrine.
(29) N-methylpseudoephedrine.
(30) N-ethylpseudoephedrine.
(31) Chloroephedrine.
(32) Chloropseudoephedrine.
(33) Hydriodic acid.

California State Department of Justice Chemical Precursor List (Continued)

(34) Gamma-butyrolactone, including butyrolactone; butyrolactone; gamma; 4-butyrolactone; 2(3H)-furanone dihydro; dihydro-2(3H)-furanone; tetrahydro-2-furanone; 1,2-butanolide; 1,4-butanolide; 4-butanolide; gamma-hydroxybutyric acid lactone; 3-hydroxybutyric; acid lactone and 4-hydroxybutanoic acid lactone with Chemical Abstract Service number (96-48-0).

(35) 1,4-butanediol, including butanediol; butane-1,4-diol; 1,4-butylene glycol; butylene glycol; 1,4-dihydroxybutane; 1,4-tetramethylene glycol; tetramethylene glycol; 1,4-diol with Chemical Abstract Service number (110-63-4). tetramethylene

(36) Red phosphorus, including white phosphorus, hypophosphorous, acid and its salts, ammonium hypophosphite, calcium hypophosphite, iron hypophosphite, potassium hypophosphite, manganese hypophosphite, magnesium hypophosphite, sodium hypophosphite, and phosphorous acid and its salts.

(37) Iodine or tincture of iodine.