**MOST TRADED SCHEDULED CHEMICALS (Sorted by CAS)**

**Chemical name:** Sulfur monochloride  
**CAS RN:** 10025-67-9  
**Schedule:** 3B12  
**HS Code:** 2812.10

**Molecular formula:** Cl₂S₂

**CAS Index Name:** Sulfur chloride (S₂Cl₂)

**Synonyms:**
- Disulfur dichloride (IUPAC name)
- UN1828 (Sulfur chlorides)
- Thiosulfurous dichloride
- Sulphur chloride (mono)
- Sulfur subchloride
- Sulfur monochloride
- Sulfur dichloride
- Dichlorodisulfane
- Chlorosulfane
- Chloride of sulfur

**Commercial applications/Industrial uses**

Used in the production of many chemical products, mainly in the manufacture of vulcanising agents for rubber, lubricant additives, gum erasers, rubber additives, rubber substitutes, sulfur dyes, antioxidants, pesticides, herbicides, insecticides, pharmaceuticals, paper and textile auxiliaries, plastics, and in the synthesis of various organic chemicals. The principle commercial uses of this chemical are in the manufacture of lubricant additives and vulcanising agent for rubber.
Chemical name: Phosphorus oxychloride

CAS RN: 10025-87-3

Schedule: 3B05      HS Code: 2812.10

Molecular formula: Cl₃OP

CAS Index Name: Phosphoric trichloride

Synonyms: Phosphoric trichloride (IUPAC name)
Phosphorus oxytrichloride
Phosphonyl trichloride
Phosphoric chloride
Phosphoroxychloride
Phosphoroxytrichloride
Phosphorus chloride oxide
Phosphorus oxide trichloride
UN1810
Phosphorus trichloride oxide
Phosphoryl chloride
Phosphoryl trichloride
Trichlorophosphine oxide
Trichlorophosphorus oxide
Phosphorous oxychloride
Phosphorus monoxide trichloride

Commercial applications/Industrial uses
Precursor for pesticides, catalyst and reactant. Used to manufacture alkyl and aryl orthophosphate tri-esters, which are used in the production of: hydraulic fluids; plastic and elastomer additives; flame retardant; oil stabilisers; pesticides; medicinal intermediates; metal extraction solvents.
**Chemical name:** Phosphorus pentachloride

**CAS RN:** 10026-13-8

**Schedule:** 3B07  **HS Code:** 2812.10

**Molecular formula:** Cl₅P

**CAS Index Name:** Phosphorane, pentachloro-

**Synonyms:**
- Pentachlorophosphorane (IUPAC name)
- UN1806
- Phosphorous pentachloride
- Phosphorus(V) chloride
- Phosphorus perchloride
- Phosphorus chloride
- Phosphoric chloride
- Pentachlorophosphorus
- Pentachlorophosphorane

**Chemical structure:**

**Commercial applications/Industrial uses**

Used as a dehydrating agent for the synthesis of a variety of inorganic and organic phosphorous derivates, water treatment chemicals, flame-retardants, plasticizers, and stabilizers for plastic elastomers, lube oil and paint additives. Used in the pharmaceutical industry in the manufacture of penicillin and cephalosporin antibiotics. In aluminium metallurgy, it is used as a grain refiner for Al-Si alloys and as a grain structure improver in metal casting.
Chemical name: 2-(N,N-Diethylamino)ethanethiol

CAS RN: 100-38-9

Schedule: 2B12        HS Code: 2930.90

Molecular formula: C₆H₁₅NS

CAS Index Name: Ethanethiol, 2-(diethylamino)-

Synonyms: 2-(Diethylamino)ethanethiol (IUPAC name)
            N,N-Diethylaminoethane-2-thiol
            2-N,N-(Diethylamino)ethanethiol
            Diethyl(2-mercaptoethyl)amine
            N,N-Diethylcysteamine
            Diethylcysteamine
            2-(Diethylamino)ethyl mercaptan
            2-(Diethylamino)ethyl hydrosulfide

Chemical structure:

Commercial applications/Industrial uses

Production of THS, an antibiotic used for veterinarian application. Raw material for the synthesis of Tiamulin Base
Chemical name: Triethanolamine

CAS RN: 102-71-6

Schedule: 3B17  HS Code: 2922.13

Molecular formula: C₆H₁₅NO₃

CAS Index Name: Ethanol, 2,2',2''-nitrilotris-

Synonyms: 2,2',2''-Nitrilotriethanol (IUPAC name)
Trolamine
Tris(beta-hydroxyethyl)amine
Triethanolamin
TEOA
TEA (amino alcohol)
TEA
Sting-Kill
Sterolamide
2,2',2''-Nitrilotris[ethanol]
Nitrilotriethanol
tris-(2-Hydroxyethyl)amine
Daltogen
Alkanolamine 244
Tris(2-hydroxyethyl)amine

Chemical structure:

Commercial applications/Industrial uses

Production of: emulsifiers, detergents, textile and leather chemicals, drilling and cutting oils (impregnating materials), medicinal soaps and high-quality cosmetics and toiletries, agricultural products, pharmaceuticals.
Production of cleaners: all-purpose cleaners, cleaners that involve skin contact because of the mildness of this chemical, waterless hand cleaners. Production of wax formulations: cream waxes and polishes used for furniture, floors and automotive car wax. Production of cement and concrete: milling additive. Production of adhesives. Application in coatings technology: metal coating preparations, glass coating (shatter proofing, anti-frosting, anti-fogging and-dirt resistant films on glass and plastics), accelerator for photo -polymerisation coating (improves thermal properties and reduces cracking in prepared wire coatings). Application as corrosion inhibitor, used in gas purification processes, metal working, mining, petroleum and coal, polymers, textiles, pigment dispersion, pesticides and herbicides.
**Chemical name:** Sulfur dichloride

**CAS RN:** 10545-99-0

**Schedule:** 3B13  
**HS Code:** 2812.10

**Molecular formula:** Cl₂S

**CAS Index Name:** Sulfur chloride (SCl₂)

**Synonyms:**
- Sulfur dichloride (IUPAC name)
- UN1828 (Sulfur chlorides)
- Sulfur dichloride (SCl₂)
- Sulfur chloride
- Monosulfur dichloride
- Dichlorosulfane
- Chlorine sulfide (Cl₂S)

**Chemical structure:**

```
  S  
 / \ 
Cl--Cl
```

**Commercial applications/Industrial uses**

Uses are similar to that of sulfur monochloride. Lubricating oil additives of types similar to those produced using Sulfur monochloride are a significant application for Sulfur dichloride. Also useful in the rapid vulcanisation of rubber, and the cross-linking ability of Sulfur dichloride is also utilized to modify drying oils for varnishes and inks. Used to make an insecticide intermediate (4,4'-thiobisphenol), and is also an ingredient in the production of the fungicide captafol (Difolatan). Used as a chlorinating agent in the manufacture of parathion insecticide intermediates. Is also used in the food industry in the purification of sugar juices.
**Chemical name:** Methyl-diethanolamine

**CAS RN:** 105-59-9

**Schedule:** 3B16  
**HS Code:** 2922.19

**Molecular formula:** C₅H₁₃NO₂

**CAS Index Name:** Ethanol, 2,2’-(methylimi-no)bis-

**Synonyms:** 2,2’-(Methylimin odio)-ethanol (IUPAC name)
- N-Methyliminodiethanol
- Methyliminodiethanol
- N-Methyl-diethanolamine
- Methyl-dietanolamine
- Methyl-bis(2-hydroxyethyl)amine
- N-Methylaminodiglycol
- MDEA
- N-(2-Hydroxyethyl)-N-methyl-ethanolamine
- Eve
- Ethanol, 2,2’-(methylimo)di-
- Diethanolmethylamine
- N,N-Bis(2-hydroxyethyl)methylamine
- N-methyl-2,2’-iminodiethanol

**Chemical structure:**

**Commercial applications/Industrial uses**

Treatment of natural gas (removal of acidic components); photographic chemicals; pharmaceutical precursor.
**Chemical name:** Bis(2-hydroxyethyl)sulfide  
**CAS RN:** 111-48-8  
**Schedule:** 2B13  
**HS Code:** 2930.90

**Molecular formula:** C₄H₁₀O₂S  
**Chemical structure:**

![Chemical structure](image)

**Synonyms:** 2,2'-Thiodiethanol (IUPAC name)  
Kromfax Solvent  
Bis(β-hydroxyethyl) sulfide  
Bis(2-hydroxyethyl) sulfide  
Bis(2-hydroxyethyl) thiocarbonate  
Diethanol sulfide  
β,β'-Dihydroxydiethyl sulfide  
Di(2-hydroxyethyl) sulfide  
Thiodiglycol  
Ethanol, 2,2'-thiodi-  
water  
Tedegyl  
3-Thiapentane-1,5-diol  
2,2'-Thiobisethanol  
Thiodiethylene glycol  
β-Thiodiglycol  
2,2'-Thiodiglycol  
β,β'-Dihydroxyethyl sulfide

**Commercial applications/Industrial uses**

Textile industry (textile printing and fabric softener); solvents; cosmetics; anti-arthritic drugs; plastics; elastomers; lubricants; stabilizers; antioxidants; inks; dyes; photographic; copying; antistatic agent; epoxides; coating; automotive enamels; metal plating.
Chemical name: Trimethyl phosphite

CAS RN: 121-45-9

Schedule: 3B08  HS Code: 2920.90

Molecular formula: C3H9O3P

CAS Index Name: Phosphorous acid, trimethyl ester

Synonyms: Trimethyl phosphite (IUPAC name)
O,O,O Trimethyl phosphite
UN2329
Trimethoxyphosphine

Commercial applications/Industrial uses

Key intermediate in the manufacture of phosphatic pesticides. Is also used as a stabilizer for PVC neoprene and as a raw material in the production of fire resistant and fire retardant materials. Also used as a plasticizer innylons, as a catalyst in polymerization reaction, and as reagent in organic synthesis. Further uses include: dyestuffs, optical brighteners, plasticizers and lubricants.
Chemical name: Triethyl phosphite
CAS RN: 122-52-1
Schedule: 3B09  HS Code: 2920.90
Molecular formula: C6H15O3P
CAS Index Name: Phosphorous acid, triethyl ester
Synonyms: Triethyl phosphite (IUPAC name)
            UN2323
            Tris(ethoxy)phosphine
            Triethoxyphosphine

Commercial applications/Industrial uses
Is used in the manufacture of flame-retardants for rigid polyurethane foam, fluorescent whitening agents, insecticides, and active ingredients for pharmaceuticals (e.g. penicillin). Organic synthesis, plasticizers, lubricant additives. Is converted into insecticidal vinyl esters of phosphoric acid. The long-chained compounds are mainly used as antioxidants for plastics. Is widely used as organophosphorus reagent.
**Chemical name:** Ethyldielanalamine  
**CAS RN:** 139-87-7  
**Schedule:** 3B15  
**HS Code:** 2922.19

**Molecular formula:** C₆H₁₅NO₂  
**CAS Index Name:** Ethanol, 2,2’-(ethylimino)bis-  
**Synonyms:** 2,2’-(Ethyylimino)diethanol (IUPAC name)  
N-Ethyl-2,2’-iminodiethanol  
N-Ethyldielanalamine  
Ethylbis(2-hydroxyethyl)amine  
Ethanol, 2,2’-(ethylimino)di-  
Diethanolylethylamine  
N,N-Bis(2-hydroxyethyl)ethylamine

**Chemical structure:**

![Chemical structure diagram](image)

**Commercial applications/Industrial uses**

Used in pharmaceutical, agricultural, textile, detergent, cosmetic and metallurgic industries. Used mainly as intermediates, especially in the production of pharmaceuticals, crop protection agents and flocculants. Also important in the preparation of chemicals for the paper and leather industries. Use in the production of plastics has risen substantially in recent years. Direct uses include gas purification methods for removing acidic gases.
**Chemical name:** Mixture of CAS RN 41203-81-0 and CAS RN 42595-45-9

**CAS RN:** 170836-68-7

**Schedule:** 2B04  
**HS Code:** 3824.90

**Molecular formula:** C15H31O9P3.C9H20O6P2

**CAS Index Name:** Phosphonic acid, methyl-, bis[(5-ethyl-2-methyl-2,2-dioxido-1,3,2-dioxaphosphorinan-5-yl)methyl] ester with (5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphorinan-5-yl)methyl methyl methylphosphonate

**Synonyms:** Amgard CT  
Antiblace U  
Pekoflam  
Antiblact  
Antiblaze  
Afflamit  
Flacavon  
Preflam

**Commercial applications/Industrial uses**

Mixture of CAS 41203-81-0 and CAS 42595-45-9 (cyclic phosphonate esters). Used as a durable flame retardant for polyester fabrics and it is also used in textile coating applications.
**Chemical name:** Dimethyl propylphosphonate

**CAS RN:** 18755-43-6

**Schedule:** 2B04

**HS Code:** 2931.00

**Molecular formula:** C₅H₁₃O₃P

**CAS Index Name:** Phosphonic acid, propyl-., dimethyl ester

**Synonym:** Dimethyl propylphosphonate (IUPAC name)

**Chemical structure:**

![Chemical structure of Dimethyl propylphosphonate]

**Commercial applications/Industrial uses**

Flame retardant for rigid polyurethane and polyisocyanurate foams.
**Chemical name:** Phosphonic acid, methyl-, polyglycol ester

**CAS RN:** 294675-51-7

**Molecular formula:** Unspecified

**CAS Index Name:** Phosphonic acid, methyl-, polyglycol ester

**Synonym:** Exolit OP 560 TP (Test Product)

**Chemical structure:**

![Chemical structure](image)

**Commercial applications/Industrial uses**

Flame retardant in the manufacture of special quality polyurethane foams
**Chemical name:** (5-Ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphinan-5-yl)methyl methyl methylphosphonate

**CAS RN:** 41203-81-0

**Schedule:** 2B04  **HS Code:** 2931.00

**Molecular formula:** C9H20O6P2

**CAS Index Name:** Phosphonic acid, methyl-, (5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphorinan-5-yl) methyl methyl ester

**Synonyms:**
- (5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphinan-5-yl)methyl methyl methylphosphonate (IUPAC name)
- Phosphonic acid, methyl-, (5-ethyl-2-methyl-1,3,2-dioxaphosphorinan-5-yl) methyl methyl ester, P-oxide

**Chemical structure:**

![Chemical structure](image)

**Commercial applications/Industrial uses**

Used as a durable flame retardant.
**Chemical name:** bis[(5-Ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphinan-5-yl)methyl] methylphosphonate

**CAS RN:** 42595-45-9

**Molecular formula:** C₁₅H₃₁O₉P₃

**Schedule:** 2B04  
**HS Code:** 2931.00

**Chemical structure:**

**CAS Index Name:** Phosphonic acid, methyl-, bis[(5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphorinan-5-yl)methyl] ester

**Synonyms:**
- bis[(5-ethyl-2-methyl-2-oxido-1,3,2-dioxaphosphinan-5-yl)methyl] methylphosphonate (IUPAC name)
- Phosphonic acid, methyl-, bis[(5-ethyl-2-methyl-1,3,2-dioxaphosphorinan-5-yl)methyl] ester,P,P’-dioxide

**Commercial applications/Industrial uses**

Flame retardant
**Chemical name:** 2-(N,N-Diisopropylamino)ethylchloride hydrochloride

**CAS RN:** 4261-68-1

**Schedule:** 2B10  
**HS Code:** 2921.19

**Molecular formula:** C₈H₁₈ClN.HCl

**CAS Index Name:** 2-Propanamine, N-(2-chloroethyl)-N-(1-methylethyl)-, hydrochloride

**Synonyms:**
- N-(2-Chloroethyl)-N-isopropylpropan-2-aminium chloride (IUPAC name)
- N,N-Diisopropylaminoethyl-2-chloride hydrochloride
- Triethylamine, 2″-chloro-1,1′-dimethyl-, hydrochloride
- 2-(Diisopropylamino)ethyl chloride hydrochloride
- (β-Chloroethyl)diisopropylamine hydrochloride
- N-(2-Chloroethyl)diisopropylamine hydrochloride

**Chemical structure:**

**Commercial applications/Industrial uses**

Pharmaceuticals: Anticancer flavanone analog preparation.
**Chemical name:** 2-(N,N-Dimethylamino)ethylchloride hydrochloride

**CAS RN:** 4584-46-7

**Schedule:** 2B10  **HS Code:** 2921.19

**Molecular formula:** C4H11Cl2N

**CAS Index Name:** Ethanamine, 2-chloro-N,N-dimethyl-, hydrochloride

**Synonyms:**
- 2-Chloro-N,N-dimethylethanaminium chloride (IUPAC name)
- 2-Chloroethyl dimethyl ammonium chloride
- 1-Chloro-2-(dimethylamino)ethane hydrochloride
- 2-Chloro-N,N-dimethylethanamine hydrochloride
- 2-Chloro-N,N-dimethylethylamine hydrochloride
- Chloroethyldimethylamine hydrochloride
- N-(2-Chloroethyl)dimethylamine hydrochloride
- (ß-Chloroethyl)dimethylamine-hydrochloride
- (2-Chloroethyl)dimethylamine hydrochloride
- Chloro(dimethylamino)ethane hydrochloride
- N-(2-Chloroethyl)-N,N-dimethlammonium chloride
- N,N-Dimethylaminoethyl-2-chloride hydrochloride
- 2-(Dimethylamino)chloroethane hydrochloride
- Dimethylaminoethyl chloride hydrochloride
- ß-Dimethylaminoethyl chloride hydrochloride
- 2-(Dimethylamino)ethyl chloride hydrochloride
- N,N-Dimethyl-N-(2-chloroethyl)amine hydrochloride
- N,N-Dimethyl-2-chloroethylamine hydrochloride
- Ethylamine, 2-chloro-N,N-dimethyl-, hydrochloride
- 2-Chloroethyl(dimethylamine) monohydrochloride

**Chemical structure:**

**Commercial applications/Industrial uses**

Pharmaceuticals; speciality surfactants; flocculants; agricultural chemicals. Pharmaceutical: Pyrrolopyridine preparation, antiinflammatory. Production of Diltiazem. Consumed for the manufacturing of Brompheniramine maleate(Antihistaminic), Chlorphenoxamine HCl(Anticholinergic), Doxilamine sucoinate(Antihistaminic), Orphenadrine hydrochloride(Muscle relaxant), Orphenadrine citrate(Muscle relaxant), Phenyltoloxamine citrate(Antihistaminic), Chloropiramine hydrochloride.
Chemical name: Cyanogen chloride

CAS RN: 506-77-4

Schedule: 3A02  HS Code: 2853.00

Molecular formula: CCIN

CAS Index Name: Cyanogen chloride ((CN)Cl)

Synonyms: Cyanogen chloride (IUPAC name)

- UN1589 (Cyanogen chloride stabilized)
- Cyanochloride
- Chlorocyanogen
- Chlorocyanide
- Chlorocyanide
- Chlorocyan
- Chlorine cyanide
- Chlorine cyanide
- Chlorine}

Chemical structure:

Commercial applications/Industrial uses

Chemical synthesis. In metal cleaners, ore refining, production of triazine herbicides (e.g. Atrazine) and insecticides (e.g. Menazon), optical brighteners, dyestuffs and synthetic rubber. Production of diphenylguanidine.
Chemical name: 2,4,6-Tripropyl-1,3,5,2,4,6-trioxatriphosphinane 2,4,6-trioxide

CAS RN: 68957-94-8

Schedule: 2B04  HS Code: 2931.00

Molecular formula: C9H21O6P3

CAS Index Name: 1,3,5,2,4,6-Trioxatriphosphorinane, 2,4,6-tripropyl-, 2,4,6-trioxide

Synonyms: 2,4,6-Tripropyl-1,3,5,2,4,6-trioxatriphosphinane 2,4,6-trioxide (IUPAC name)
Propylphosphonic anhydride
n-Propylphosphonic cyclic anhydride
1-Propanephosphonic acid cyclic anhydride, 50% in ethyl acetate
1-Propanephosphonic acid cyclic anhydride

Chemical structure:

Commercial applications/Industrial uses

**Chemical name:** Polymer from the mixture of Dimethyl methylphosphonate, Oxirane and Phosphorus oxide (P2O5)

**CAS RN:** 70715-06-9

**Schedule:** 2B04  
**HS Code:** 3824.90

**Molecular formula:** (C3H9O3P.C2H4O.O5P2)X

**Chemical structure:**

![Chemical structure diagram]

**CAS Index Name:** Phosphonic acid, methyl-, dimethyl ester, polymer with oxirane and phosphorus oxide (P2O5)

**Synonyms:** Phosphorus oxide, polymer with dimethyl methylphosphonate and oxirane  
Dimethyl methylphosphonate, polymer with phosphorus pentoxide and ethylene oxide

**Commercial applications/Industrial uses**

Mixture which is used as a durable flame retardant

**Components:**

Phosphorus Pentoxide (P2O5), Dimethyl methylphosphonate and Oxirane
**Chemical name:** Hydrogen cyanide

**CAS RN:** 74-90-8

**Schedule:** 3A03  
**HS Code:** 2811.19

**Molecular formula:** CHN

**CAS Index Name:** Hydrocyanic acid

**Synonyms:**
- Nitrilomethane (IUPAC name)
- UN1614 Hydrogen cyanide (STABILIZED)
- Prussic acid
- Formonitrile
- Formic ammonide
- Evercyn
- Carbon hydride nitride (CHN)

**Commercial applications/Industrial uses**

Manufacturing of metal polishes, acrylates, cyanide salts, dyes, rodenticides, pesticides, synthetic fibers, plastics, and electroplating solutions. Used in metallurgical and photographic processes, and to produce cyanuric acid. Used as a starting material for nylon 66. Used to fumigate ships and warehouses, and in ore-extracting processes. It is an intermediate for methyl methacrylate, sodium cyanide, aminopolycarboxylic and acid chelating agents, and a raw material for nitriloacids.
**Chemical name:** Carbonyl dichloride

**CAS RN:** 75-44-5

**Schedule:** 3A01  **HS Code:** 2812.10

**Molecular formula:** CCl₂O

**CAS Index Name:** Carbonic dichloride

**Synonyms:**
- Carbonyl dichloride (IUPAC name)
- UN1076
- Phosgene
- Phosgen
- Dichloroformaldehyde
- Chloroformyl chloride
- CG
- Carbonyl chloride
- Carbon oxychloride
- Carbon dichloride oxide

**Commercial applications/Industrial uses**

Production of intermediates and products in many branches of large-scale industrial chemistry. Production of di-isocyanates as starting materials of polyurethane chemistry. Polycarbonate resins, Polyurethane coatings, Cholinergic medicines. Chloroformates. The reaction of phosgene with alcohols to form chloroformic esters is very important for industrial applications. These esters are exceptionally versatile intermediates for the production of, for example, carbonic esters, as well as for many other applications (e.g. used in the pharmaceutical industry and in the production of carbamate insecticides). In inorganic chemistry, phosgene is used as an intermediate for the large-scale production of aluminium chloride.
**Chemical name:** Dimethyl methylphosphonate

**CAS RN:** 756-79-6

**Schedule:** 2B04  
**HS Code:** 2931.00

**Molecular formula:** C3H9O3P

**CAS Index Name:** Phosphonic acid, methyl-, dimethyl ester

**Synonyms:**  
Dimethyl methylphosphonate (IUPAC name)  
Methylphosphonic acid dimethyl ester  
Methanephosphonic acid dimethyl ester  
Metaran  
Fyrol DMMP  
Furan TF 2000  
DMMP  
O,O-Dimethyl methylphosphonate  
Dimethyl methanephosphonate  
Dimethoxymethyl phosphine oxide

**Commercial applications/Industrial uses**

Flame retardant for resins, with application in: building materials, furnishings; transportation equipment and fittings; electrical industry (cables, housing); upholstery; lubricant additive.
Chemical name: Trichloronitromethane

CAS RN: 76-06-2

Schedule: 3A04          HS Code: 2904.90

Molecular formula: CCl3NO2

CAS Index Name: Methane, trichloronitro-

Synonyms: Trichloro(nitro)methane (IUPAC name)
UN1580
PS
Picfume
Nitrotrichloromethane
Nitrochloroform
Microlysin
Larvacide
G 25
Chloropicrin
Chloropicrin
Acquinite

Commercial applications/Industrial uses

Mainly used as a soil disinfectant for control of nematodes, soil insects, soil fungi and weed seeds. Is also used for fumigation of stored grain to control insects and rodents, and for glass houses and mushroom house fumigation. Often used in combination with methyl bromide and other fumigants. Is used as a tear gas because of its lachrymatory properties. Is used in the chemical industry as a raw material in organic synthesis, i.e. in manufacturing dyes.
Chemical name: Diethyl phosphite

CAS RN: 762-04-9  
Schedule: 3B11  
HS Code: 2920.90  
Molecular formula: C4H11O3P

CAS Index Name: Phosphonic acid, diethyl ester

Synonyms: Diethyl phosphite (IUPAC name)
Hydrogen diethyl phosphite
Diethyl phosphonate
Diethyl hydrogen phosphate
Diethyl acid phosphate
Diethoxyphosphine oxide
CGI 1700

Chemical structure:

Commercial applications/Industrial uses

Used as a paint solvent, lubricant additive, antioxidant for plastics, reducing agent, intermediate in flame retardants (e.g. in the manufacture of rigid polyurethane foams), and crop protection agents (insecticides), and as a phosphorylating agent. It is a reactive intermediate for use in organic synthesis.
**Chemical name:** 2,2-Diphenyl-2-hydroxyacetic acid  
**CAS RN:** 76-93-7  
**Schedule:** 2B08  
**HS Code:** 2918.19  
**Molecular formula:** C14H12O3  
**Chemical structure:**

![Chemical structure](image)

**CAS Index Name:** Benzeneacetic acid, α-hydroxy-α-phenyl-  
**Synonyms:** 2,2-Diphenyl-2-hydroxyacetic acid (IUPAC name)  
α-Hydroxydiphenylacetic acid  
α-Hydroxy-α-phenylbenzeneacetic acid  
α-Hydroxy-2,2-diphenylacetic acid  
α,α-Diphenylglycolic acid  
α,α-Diphenyl-α-hydroxyacetic acid  
NSC 2830  
2-Hydroxy-2,2-diphenylacetic acid  
Hydroxydiphenylacetic acid  
Diphenylhydroxyacetic acid  
Diphenylglycolic acid  
Benzilic acid  
Hydroxy(diphenyl)acetic acid

**Commercial applications/Industrial uses**

Chemical name: **Thionyl chloride**

**CAS RN:** 7719-09-7

**Schedule:** 3B14   **HS Code:** 2812.10

**Molecular formula:** Cl₂OS

**CAS Index Name:** Thionyl chloride

**Synonyms:** Thionyl dichloride (IUPAC name)
UN1836
Thionyl chloride (SOCl₂)
Sulfur oxychloride (SOCl₂)
Sulfur oxychloride
Sulfurous oxychloride
Sulfurous dichloride
Sulfur chloride oxide (SCI₂O)
Sulfur chloride oxide (Cl₂SO)
Sulfinyl dichloride
Sulfinyl chloride

**Commercial applications/Industrial uses**

One of the most important chlorinating agents in organic chemistry. Application in the production of: crop-protection agents (herbicides and insecticides); pharmaceuticals (drugs and vitamins); dyes; paper and textile auxiliaries.
Chemical name: Phosphorus trichloride

CAS RN: 7719-12-2

Schedule: 3B06        HS Code: 2812.10

Molecular formula: Cl₃P

CAS Index Name: Phosphorus trichloride

Synonyms: Phosphorous trichloride (IUPAC name)
            UN1809
            Phosphorous trichloride
            Trichlorophosphine
            Phosphorus chloride (PCl₃)
            Phosphorus chloride (Cl₆P₂)
            Phosphorous chloride
            Phosphine, trichloro-

Chemical structure:

Commercial applications/Industrial uses

Used as chlorinating agents and catalyst. Starting material in production of organophosphorus and inorganic compounds: phosphoryl chloride, phosphorus pentachloride, phosphonic acid. Reacts with pure oxygen to produce an important intermediate used for the production of: synthetic colourants; pharmaceutical products; organic phosphates (insecticides, fire-retardants, plasticisers, metal extraction solvents).
Chemical name: Diethyl ethylphosphonate

CAS RN: 78-38-6

Schedule: 2B04          HS Code: 2931.00

Molecular formula: C₆H₁₅O₃P

CAS Index Name: Phosphonic acid, ethyl-, diethyl ester

Synonyms: Diethyl ethylphosphonate (IUPAC name)
          Diethyl ethanephosphonate
          Diethoxyethyllphosphine oxide
          Amgard V 490

Commercial applications/Industrial uses

Gasoline additive; raw material for insecticides; flame-proofing agent; stabiliser and antioxidant for plastics.
Chemical name: Mixture: 50% Methylphosphonic acid / 50% (Aminoiminomethyl)urea

CAS RN: 84402-58-4

Schedule: 2B04 HS Code: 2931.00

Molecular formula: C2H6N4O.CH5O3P

CAS Index Name: Phosphonic acid, methyl-, compound with (aminoiminomethyl)urea (1:1)

Synonyms: Methylphosphonic acid compound with (aminoiminomethyl)urea (1:1)

Chemical structure:

Commercial applications/Industrial uses

Flame retardant (specifically for polyesters, polyurethane foams).
Cleaning agents and emulsifiers, textile improvers, anticorrosion agents, fabrics.
Chemical name: Sodium 3-(trihydroxysilyl)propyl methylphosphonate

CAS RN: 84962-98-1

Schedule: 2B04  HS Code: 2931.00

Molecular formula: C4H12NaO6PSi

CAS Index Name: Phosphonic acid, methyl-, mono[3-(trihydroxysilyl)propyl] ester, monosodium salt

Synonyms: Sodium 3-(trihydroxysilyl)propyl methylphosphonate (IUPAC name)
Methylphosphonic acid mono[3-(trihydroxysilyl)propyl] ester, monosodium salt

Chemical structure:

![Chemical structure diagram]

Commercial applications/Industrial uses

Antifreeze additive
**Chemical name:** Dimethyl phosphite

**CAS RN:** 868-85-9

**Schedule:** 3B10  
**HS Code:** 2920.90

**Molecular formula:** C₂H₇O₃P

**CAS Index Name:** Phosphonic acid, dimethyl ester

**Synonyms:**
- Dimethyl phosphite (IUPAC name)
- Methyl phosphonate ((MeO)₂HPO)
- Hydrogen dimethyl phosphite
- Dimethyl phosphonate
- Dimethyl hydrogen phosphonate
- Dimethyl hydrogen phosphite
- Dimethyl acid phosphate
- Dimethoxyphosphine oxide
- NCI-C54773
- Dimethylfosfonat
- Dimethylfosfit
- Phosphorous acid dimethyl ester
- O,O-Dimethyl phosphonate
- Dimethylester kyseliny fosforite

**Commercial applications/Industrial uses**

Main areas of application are in the production of phosphonic acid derivatives, insecticides, and plastic additives. Is required in the manufacture of phosphonates. Is applied in the manufacture of crop protection agents and flame-retardants, e.g. for textile fibers. Organic synthesis: lubricant additive.
**Chemical name:** 2-(N,N-Diethylamino)ethyl chloride hydrochloride

**CAS RN:** 869-24-9

**Schedule:** 2B10  
**HS Code:** 2921.19

**Molecular formula:** C₆H₁₅Cl₂N

**CAS Index Name:** Ethanamine, 2-chloro-N,N-diethyl-, hydrochloride

**Synonyms:**
- 2-Chloro-N,N-diethylethanaminium chloride (IUPAC name)
- 2-(Diethylamino)ethyl chloride hydrochloric acid salt
- 2-Chloro-N,N-diethylethyamine hydrochloride
- N-(2-Chloroethyl)diethylamine hydrochloride
- β-Chloroethyldiethylamine hydrochloride
- 2-Chloroethyl-N,N-diethylamine hydrochloride
- (2-Chloroethyl)diethylamine monohydrochloride
- 2-Chloroethyldiethylammonium chloride
- 1-Chloro-2-(diethylamino)ethane hydrochloride
- 2-Chlorotriethylamine hydrochloride
- N,N-Diethylaminoethyl chloride hydrochloride
- β-(Diethylamino)ethyl chloride hydrochloride
- 2-(Diethylamino)ethyl chloride hydrochloride
- 2-(N,N-Diethylamino)ethyl chloride hydrochloride
- N,N-Diethyl-β-chloroethylamine hydrochloride
- N,N-Diethyl-2-chloroethylamine hydrochloride
- Triethylamine, 2-chloro-, hydrochloride
- N-2-Chloroethyl-N,N-diethylammonium hydrochloride

**Chemical structure:**

**Commercial applications/Industrial uses**

**Chemical name:** 2-(N,N-Diisopropylamino)ethanol

**CAS RN:** 96-80-0

**Schedule:** 2B11  
**HS Code:** 2922.19

**Molecular formula:** C₈H₁₉NO

**CAS Index Name:** Ethanol, 2-[bis(1-methylethyl)amino]-

**Synonyms:** 2-Diisopropylaminoethanol (IUPAC name)  
N,N-Diisopropylaminoethane-2-ol  
Ethanol, 2-(diisopropylamino)-  
N,N-Diisopropylethanolamine  
2-(Diisopropylamino)ethyl alcohol  
2-(Diisopropylamino)ethanol  
N,N-Diisopropyl-2-aminoethanol  
(N,N-Diisopropylamino)ethanol  
2-diisopropylaminoethanol

**Chemical structure:**

**Commercial applications/Industrial uses**

Pharmaceuticals: Benzamide preparation; treatment of digestive tract disorder