



Designation: F2931 – 19a

Standard Guide for Analytical Testing of Substances of Very High Concern in Materials and Products¹

This standard is issued under the fixed designation F2931; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide contains a list of potential test methods for the analysis of Substances of Very High Concern (SVHC) as designated by ECHA, the European Chemicals Agency. Information on the test methods cited is publicly available and is drawn from a variety of sources. The guide is intended to assist in the selection of test methods that are applicable for the SVHCs identified.

1.2 The specific SVHCs covered within this guide are compiled from the ECHA Candidate List of Substances of Very High Concern. This list is also referred to as the REACH Candidate List.

1.3 This guide specifically addresses methods for the analysis of SVHCs in products. It is not intended to cover the many and varied analysis challenges associated in the manufacturing environment.

1.4 Limitations:

1.4.1 This guide is intended to provide a compilation of available test methods for the SVHCs listed on the ECHA Candidate list and is not intended to be exhaustive. The test methods within this guide are not the only ones available for any specific substances and this guide does not recommend any specific test method.

1.4.2 Test methods for specific substances at the detection limits required for REACH reporting are not always available. In some cases, it is necessary to deduce the quantity of substance present through the analysis and quantification of its elements. Although this approach is routinely used some degree of uncertainty exists in the final result due to the reduced specificity of the test method.

1.4.3 Although this guide is intended to be updated on a periodic basis to capture new developments in the field, there is no assurance that the information provided is the most current.

1.5 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

D1257 Specification for High-Gravity Glycerin

D1385 Test Method for Hydrazine in Water

D1971 Practices for Digestion of Water Samples for Determination of Metals by Flame Atomic Absorption, Graphite Furnace Atomic Absorption, Plasma Emission Spectroscopy, or Plasma Mass Spectrometry

D3335 Test Method for Low Concentrations of Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy

D3545 Test Method for Alcohol Content and Purity of Acetate Esters by Gas Chromatography

D4309 Practice for Sample Digestion Using Closed Vessel Microwave Heating Technique for the Determination of Total Metals in Water

D5292 Test Method for Aromatic Carbon Contents of Hydrocarbon Oils by High Resolution Nuclear Magnetic Resonance Spectroscopy (Withdrawn 2018)³

D5831 Practice for Screening Fuels in Soils

¹ This guide is under the jurisdiction of ASTM Committee F40 on Declarable Substances in Materials and is the direct responsibility of Subcommittee F40.02 on Management Practices and Guides.

Current edition approved Dec. 1, 2019. Published January 2020. Originally approved in 2011. Last previous edition approved in 2019 as F2931 – 19. DOI: 10.1520/F2931-19A.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

- D7065** Test Method for Determination of Nonylphenol, Bisphenol A, *p*-tert-Octylphenol, Nonylphenol Monoethoxylate and Nonylphenol Diethoxylate in Environmental Waters by Gas Chromatography Mass Spectrometry
- D7485** Test Method for Determination of Nonylphenol, *p*-tert-Octylphenol, Nonylphenol Monoethoxylate and Nonylphenol Diethoxylate in Environmental Waters by Liquid Chromatography/Tandem Mass Spectrometry
- D7823** Test Method for Determination of Low Level Phthalates in Poly (Vinyl Chloride) Plastics by Thermal Desorption—Gas Chromatography/Mass Spectrometry
- D7968** Test Method for Determination of Polyfluorinated Compounds in Soil by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)
- E1621** Guide for Elemental Analysis by Wavelength Dispersive X-Ray Fluorescence Spectrometry
- F2576** Terminology Relating to Declarable Substances in Materials
- F2853** Test Method for Determination of Lead in Paint Layers and Similar Coatings or in Substrates and Homogeneous Materials by Energy Dispersive X-Ray Fluorescence Spectrometry Using Multiple Monochromatic Excitation Beams

2.2 European Commission:⁴

Article 57 of the European Union Regulation #1907/2006

2.3 International Electrotechnical Commission TC111:⁵

IEC 62321 Electrotechnical Products – Determination of Levels of Six Regulated Substances (Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers)

2.4 Joint Industry Guide (JIG):⁶

JIG-101 Material Composition Declaration for Electrotechnical Products. Ed 4.0, 2011

3. Terminology

3.1 Definitions:

3.1.1 Terms and definitions related to declarable substances in materials may be found in Terminology **F2576**.

3.1.2 Terms and definitions in the guide not found in Terminology **F2576** are found in a common dictionary or other reference documents such as the ASTM Dictionary of Engineering Science & Technology.⁷

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *article*—“an object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition” as defined in Article 3(3) of the REACH Regulation.

3.2.2 *brominated flame retardant*—a group of brominated organic compounds that are used to inhibit initiation of a fire.

3.2.3 *Joint Industry Guide*—An industry standard of the Electric Industries Alliance that “establishes the relevant substances as well as reporting thresholds that the industry agrees should govern material content disclosures.”⁶

3.2.4 *phthalates*—also known as *phthalate esters*, are esters of phthalic acid primarily used as a plasticizer for polyvinyl chloride or as solvents for many different types of consumer products.

3.2.5 *plasticizer*—any of a group of substances used in plastics and other materials to control viscosity, flexibility or softness of the finished product.

3.2.6 *Substances of Very High Concern (SVHC)*—substances that have hazards of serious consequences and meet the criteria for carcinogenic, mutagenic and reproductive toxic substances of category 1 and 2.

3.2.6.1 *Discussion*—SVHC can be persistent, bioaccumulative and toxic (PBT) substances or very persistent and very bioaccumulative (VPvB) substances. Other substances giving rise to an equivalent level of concern as potential SVHC include endocrine disruptors.

3.3 Acronyms:

3.3.1 **AAS**—Atomic Absorption Spectrometry

3.3.2 **AED**—Atomic Emission Detection

3.3.3 **AES**—Atomic Emission Spectrometry

3.3.4 **AFS**—Atomic Fluorescence Spectrometry

3.3.5 **BFR**—Brominated Flame Retardant

3.3.6 **CAS**—Chemical Abstract Services

3.3.7 **CES**—Specialty Chemicals Europe Silicones, Silicones Europe

3.3.8 **CMR**—Carcinogenic, Mutagenic and Toxic to Reproduction

3.3.9 **COE**—Coke Oven Emissions

3.3.10 **CPSC**—United States Consumer Product Safety Commission

3.3.11 **CTPV**—Coal Tar Pitch Volatiles

3.3.12 **cVMS**—Cyclic Volatile Methyl Siloxanes

3.3.13 **DMF**—Dimethylformamide

3.3.14 **ECD**—Electron Capture Detection

3.3.15 **ECHA**—European Chemicals Agency

3.3.16 **ECNI**—Electron Capture Negative Ion

3.3.17 **EDXRF**—Energy Dispersive X-ray Fluorescence

3.3.18 **EEE**—Electrical and Electronic Equipment

3.3.19 **EIA**—Electronic Industries Alliance

3.3.20 **EPA**—United States Environmental Protection Agency

3.3.21 **EU**—European Union

3.3.22 **FID**—Flame Ionization Detection

3.3.23 **FL**—Fluorescence

3.3.24 **FLAA**—Flame Atomic Absorption Spectroscopy

3.3.25 **FPD**—Flame Photometric Detection

3.3.26 **GC-MS**—Gas Chromatography/Mass Spectrometry

⁴ Europese Commissie, B-1049, Brussels, Belgium, http://ec.europa.eu/index_en.htm.

⁵ Available from International Electrotechnical Commission (IEC), 3, rue de Varembe, P.O. Box 131, CH-1211 Geneva 20, Switzerland, <http://www.iec.ch>.

⁶ Available from the Consumer Electronics Association, 1919 S. Eads St. Arlington, VA 22202, <http://www.ce.org>

⁷ ASTM Dictionary of Engineering Science & Technology, 10th Edition. Available from www.astm.org.

3.3.27 *GFAA*—Graphite Furnace Atomic Absorption Spectrometry

3.3.28 *GFF*—Glass Fiber Filters

3.3.29 *HAFID*—Hydrogen Atmosphere Flame Ionization Detection

3.3.30 *HFAA*—Heptafluorobutyric acid anhydride

3.3.31 *HIPS*—High Impact Polystyrene

3.3.32 *HPLC*—High Performance (or Pressure) Liquid Chromatography

3.3.33 *ICP-MS*—Inductively Coupled Plasma – Mass Spectrometry

3.3.34 *ICP-OES*—Inductively Coupled Plasma – Optical Emission Spectrometry

3.3.35 *IR*—Infrared Spectrometry

3.3.36 *LC-MS-MS*—Liquid Chromatography-Tandem

3.3.37 *MSP*—Microspectrophotometer

3.3.38 *NIOSH*—United States National Institute for Occupational Health and Safety

3.3.39 *PAH*—Polycyclic Aromatic Hydrocarbon

3.3.40 *PTFE*—Polytetrafluoroethylene (Teflon)

3.3.41 *PVC*—Polyvinyl Chloride

3.3.42 *REACH*—Registration, Evaluation and Authorization of Chemicals

3.3.43 *RoHS*—Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment

3.3.44 *UV-VIS*—UltraViolet-Visible Spectrometry

3.3.45 *XRF*—X-ray Fluorescence Spectrometry

4. Summary of Guide

4.1 This guide provides a list of test methods for the determination of the Substances of Very High Concern as identified in the REACH Candidate list. Screening methods are discussed in [Appendix X2](#).

4.2 This guide provides identifiers for each substance such as chemical name, synonyms, chemical formulas, CAS and EU numbers.

4.3 Common uses for each of the substances are identified.

5. Significance and Use

5.1 The REACH Candidate list classifies substances as SVHCs thus making them subject to possible authorization. Compliance to the REACH regulation requires that any identified SVHC be present at a concentration of less than 0.1 % (w/w) of the total article weight to avoid triggering a reporting obligation. This guide is intended to assist in the identification of available test methods for quantitative analysis of the substance(s) of interest.

5.2 When possible, industry accepted standard test methods are cited. However, industry vetted test methods are not available for all of the substances contained in the REACH Candidate List. Thus, some caution and due diligence must be exercised when applying some of the methods listed in this guide.

5.3 In some cases, test methods for the identification and quantification of a specific substance are not available. An example would include CoCl_2 . Methods currently in practice involve the individual determination of Co and Cl concentrations and use other sources of information or chemical judgment to assign the expected CoCl_2 concentration. This approach obviously has its limitations and pitfalls and must be used judiciously.

5.4 Under the REACH regulation, EU manufacturers, importers or distributors of articles containing more than 0.1 % (w/w) of a substance that the Agency has listed as being an SVHC shall provide their customers with the name of the substance and information allowing the safe use of the article. Producers and distributors of articles containing SVHC shall also supply the same information to consumers, upon request. In situations where this information is not readily available from the supply chain it is incumbent upon the supplier to collect this information through actual chemical analysis or other means. This guide is intended to assist in the selection of appropriate test methods in the event that chemical analysis is required.

6. Substance List and Uses

6.1 The substances listed⁸ in [Table 1](#) were derived from the ECHA SVHC Candidate List published from October 2008 to July 2019. Any substances that have been subsequently added after July 2019 are not included.

6.2 The CAS or EU numbers are unique identifiers for the substance. It is possible for a particular substance to have one or more commonly used names.

6.3 Common uses of the substance help to identify in which products or materials these substance is likely to be found. Note that the list of common uses is not exhaustive.

7. SVHC Test Methods

7.1 This guide is not intended to be exhaustive in the identification of available test methods. The intent is to provide guidance and some examples of available test methods relevant to the required analysis. Some of the SVHCs do not have industry standard test methods associated with them. Literature citations of these non-standard methods are meant to be for information only.

7.2 Standard test methods do not exist for all of the SVHCs listed. Therefore, the test methods cited for those substances must be validated for analytical accuracy before use in regulatory compliance demonstration. Moreover, when a method is applied outside of its intended scope, validation of the altered method is required. Considerations such as sample matrix, analytical requirements, etc. for the intended analysis will determine its applicability. All deviations from the published method must be clearly noted.

NOTE 1—If a standardized method is used beyond the stated scope, that addition must be validated. All deviations from published methods must be documented.

⁸ ECHA, European chemical agency, Candidate List of substances of very high concern for Authorisation, <https://echa.europa.eu/candidate-list-table>.



TABLE 1 SVHC Substances and Their Common Uses

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
4,4'-Diaminodiphenylmethane	4,4'-Methylene-dianiline, MDA	101-77-9	202-974-4	$C_{13}H_{14}N_2$	Converted to methylenediphenyl diisocyanate (MDI). MDI used for polyurethane production. Other uses include: (1) hardener for epoxy resins and adhesives, (2) basic ingredient of colorant, and (3) intermediate for high-performance polymer.
5-tert-Butyl-2,4,6-Trinitro-m-Xylene	Musk Xylene (2,4,6-Trinitro-1,3-dimethyl-5-tert-butylbenzene)	81-15-2	201-329-4	$C_{12}H_{15}N_3O_6$	Used as a fragrant particularly for consumer cosmetic products.
Alkanes, C10-13, chloro	Short Chain Chlorinated Paraffins (SCCP)	85535-84-8	287-476-5	$C_xH_{(2x-y+2)}Cl_y$ where $x=10-13$ and $y=1-13$	May act as a secondary plasticizer or flame retardant in PVC. Other uses include: (1) metal working lubricant, (2) rubber parts, (3) paints, (4) sealant, (5) leather work, and (6) fiber.
Anthracene	Paranaphthalene	120-12-7	204-371-1	$C_{14}H_{10}$	An intermediate in the production of dyes; used in the manufacturer of pyrotechnic products.
Benzyl butyl phthalate	Phthalic acid, benzyl butyl ester	85-68-7	201-622-7	$C_{19}H_{20}O_4$	Plasticizer in flooring material such as PVC foam. Other uses are as a plasticizer in traffic cones, food conveyor belts, artificial leather, etc.
Bis(2-ethylhexyl)phthalate	Diethylphthalate	117-81-7	204-211-0	$C_{24}H_{38}O_4$	Commonly used as a plasticizer in manufacturing of articles made of PVC, resins, rubbers, packaging materials, some paper products, and various medical devices, including the blood bags. It can also be found in some hydraulic fluids or dielectric fluids in capacitors. It is often found in coatings, pigments, textiles, or used as a solvent in light sticks.
Bis (tributyltin) oxide	Distannoxane, hexabutyl-	56-35-9	200-268-0	$C_{24}H_{54}OSn_2$	Primarily used as a biocide for boats, mildew proofing for leather work.
Cobalt dichloride	Cobaltous Chloride	7646-79-9	231-589-4	$CoCl_2$	This substance can be used for (1) humidity indicator, (2) absorbent of ammonia gas, (3) gas mask, (4) production for vitamin B ₁₂ , (5) trace amount of nutrient factor for food, (6) trace amount of element for nitric-acid pesticides, (7) solvent in purifying magnesium. Additionally, it may be used for packaging.
Diarsenic pentaoxide	Diarsenic Pentoxide	1303-28-2	215-116-9	As_2O_5	This substance can be used for (1) colorants, (2) metal refining, (3) special glass production, and (4) antiseptic agent for wood.
Diarsenic trioxide	Arsenic Trioxide	1327-53-3	215-481-4	As_2O_3	This substance can be used for (1) decolorants for glasses and enamel, (2) purifying and oxidizing agent in production of special glasses and lead crystal, (3) antiseptic agent for wood, and (4) medicine for leukemia.
Dibutyl phthalate	1,2-Benzenedicarboxylic acid di-n-butyl ester	84-74-2	201-557-4	$C_{16}H_{22}O_4$	Common plasticizer used in various polymers to keep crystals from forming. It is also used in paints, pigments, or printing inks as an adhesive agent. It is soluble in various organic solvents. This property allows it to be used as fixatives in perfumes or as an ectoparasiticide.
Hexabromocyclododecane	Cyclododecane, hexabromo-isomers	25637-99-4	247-148-4	$C_{12}H_{18}Br_6$	Used as a brominated flame retardant for polystyrene materials, for example, HIPS case material and packaging.
Lead hydrogen arsenate	Lead Acid Arsenate	7784-40-9	232-064-2	$(AsO_4H)Pb$	Insecticide or pesticide
Sodium dichromate dihydrate	Sodium Bichromate	7789-12-0	234-190-3	$Na_2Cr_2O_7 \cdot 2H_2O$	Used for: (1) production of other chromium compounds, (2) production of inorganic chromate pigments, (3) preservative supplement, finishing of metal plating, (4) production of vitamin K.
Triethyl arsenate	Arsenic acid Triethyl Ester	15606-95-8	427-700-2	$(C_2H_5O)_3AsO$	Used for integrated circuit manufacturing as an intermediate for n-type doping of semiconductors.
2,4-Dinitrotoluene	1-methyl-2,4-dinitrobenzene	121-14-2	204-450-0	$C_7H_6N_2O_4$	2,4-dinitrotoluene is used in the production of toluene diisocyanate, which is used for the manufacture of flexible polyurethane foams. The substance is also used as gelatinizing-plasticizing agent for the manufacture of explosive mixtures (for example, for airbags in cars).
Pyrominosilicate Refractory Ceramic Fibres	VITREOUS	142844-00-6			Refractory ceramic fibres are used for high-temperature insulation, almost exclusively in industrial applications (insulation of industrial furnaces and equipment, equipment for the automotive and aircraft/aerospace industry) and in fire protection (buildings and industrial process equipment).



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Anthracene oil	Anthracene Phenanthrene Carbazole	90640-80-5	292-602-7	$C_{14}H_{10}$ $C_{12}H_9N$	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
Anthracene oil, anthracene paste	Anthracene Phenanthrene Carbazole	90640-81-6	292-603-2	$C_{14}H_{10}$ $C_{12}H_9N$	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
Anthracene oil, anthracene paste, anthracene fraction	Anthracene Phenanthrene Carbazole	91995-15-2	295-275-9	$C_{14}H_{10}$ $C_{12}H_9N$	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
Anthracene oil, anthracene paste, distn. lights	Anthracene Phenanthrene Carbazole	91995-17-4	295-278-5	$C_{14}H_{10}$ $C_{12}H_9N$	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
Anthracene oil, anthracene-low	Anthracene Phenanthrene Carbazole	90640-82-7	292-604-8	$C_{14}H_{10}$ $C_{12}H_9N$	The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in bunker fuel, for impregnating, sealing and corrosion protection.
Diisobutyl phthalate	Bis(2-methylpropyl) benzene-1,2-dicarboxylate	84-69-5	201-553-2	$C_{16}H_{22}O_4$	Diisobutyl phthalate is used as plasticiser for nitrocellulose, cellulose ether, polyacrylate and polyacetate dispersions, and as a gelling aid in combination with other plasticisers, which are widely used for plastics, lacquers, adhesives, explosive material and nail polish.
Lead chromate	Lead(2+) chromate	7758-97-6	231-846-0	$CrH_2O_4 \cdot Pb$	Lead chromate is used for manufacturing pigments and dyes, as a pigment or coating agent in industrial and maritime paint products or for embalming/restoring of art products. Further potential uses include as detergents and bleaches, photosensitive materials and for the manufacture of pyrotechnic powder.
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	Lead(2+) chromate lead(2+) sulfate lead(2+) molybdate	12656-85-8	235-759-9	$CrH_2O_4 \cdot Pb$ $H_2O_4 \cdot S \cdot Pb$ $PbMoO_4$	Lead chromate molybdate sulphate red (C.I. Pigment Red 104) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment, vehicles and aircraft as well as road and airstrip painting.
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	Lead(2+) chromate lead(2+) sulfate	1344-37-2	215-693-7	$CrH_2O_4 \cdot Pb$ $H_2O_4 \cdot S \cdot Pb$	Lead sulfochromate yellow (C.I. Pigment Yellow 34) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment, vehicles and aircraft as well as road and airstrip painting. The substance is further used for camouflage or ammunition marking in the defence area.
Pitch, coal tar, high temperature	anode pitch, binder pitch, clay pigeon binder, electrode pitch, hard pitch, impregnating pitch, soft pitch, vacuum pitch	65996-93-2	266-028-2	not applicable	Pitch, coal tar, high temperature is mainly used in the production of electrodes for industrial applications. Smaller volumes are dedicated to specific uses such as heavy duty corrosion protection, special purpose paving, manufacture of other substances and the production of clay targets.
Tris(2-chloroethyl)phosphate		115-96-8	204-118-5	$C_6H_{12}Cl_3O_4P$	Tris(2-chloroethyl)phosphate is mainly used as an additive plasticiser and viscosity regulator with flame-retarding properties for acrylic resins, polyurethane, polyvinyl chloride and other polymers. Other fields of application are adhesives, coatings, flame-resistant paints and varnishes. The main industrial branches to use TCEP are the furniture, the textile and the building industry.
Refactory Aluminosilicate Refractory Ceramic Fibres					Refractory ceramic fibres are used for high-temperature insulation, almost exclusively in industrial applications (insulation of industrial furnaces and equipment, equipment for the automotive and aircraft/aerospace industry) and in fire protection (buildings and industrial process equipment).





TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Acrylamide	Prop-2-enamide	79-06-1	201-173-7	C_3H_5NO	Acrylamide is almost exclusively used for the synthesis of polyacrylamides, which are used in various applications, in particular in waste water treatment and paper processing. Minor uses of acrylamide comprise the preparation of polyacrylamide gels for research purposes and as grouting agents in civil engineering.
Ammonium dichromate	Diammonium dichromate, Ammonium bichromate, ammonium chromate, chromic acid $[H_2Cr_2O_7]$ diammonium salt, diammonium dichromate, dichromic acid, diammonium salt	7789-09-5	232-143-1	$Cr_2H_2O_7 \cdot 2H_3N$	Ammonium dichromate is mainly used as an oxidising agent. Other known uses are in the manufacture of photosensitive screens and as mordant in the manufacture of textiles. Minor uses seem to comprise metal treatment and laboratory analytical agent.
Boric acid		10043-35-3 11113-50-1	233-139-2 234-343-4	BH_3O_3	Boric acid is widely used on account of its consistency-influencing, flame-retarding, antiseptic and preservative properties. It is a component of detergents and cleaners, adhesives, toys, industrial fluids, brake fluids, glass, ceramics, flame retardants, paints, disinfectants, cosmetics, food additives, fertilisers, insecticides and other products.
Disodium tetraborate, anhydrous	Disodium tetraborate decahydrate, Disodium tetraborate anhydrous, Disodium tetraborate pentahydrate, borax decahydrate, boric acid, disodium salt, borax pentahydrate	1303-96-4 1330-43-4 12179-04-3	215-540-4	$Na_2B_4O_7 \cdot 10H_2O$ $Na_2B_4O_7$ $Na_2B_4O_7 \cdot 5H_2O$	Disodium tetraborate and tetraboron disodium heptaoxide form the same compounds in aqueous solutions. Uses include a multitude of applications, for example, in detergents and cleaners, in glass and glass fibres, ceramics, industrial fluids, metallurgy, adhesives, flame retardants, personal care products, biocides, fertilisers.
Potassium chromate	Dipotassium chromate, Bipotassium chromate, Dipotassium monochromate, Bipotassium monochromate, Neutral potassium chromate, Potassium chromate (VI), Chromate of potash (potass), Chromic acid dipotassium salt	7789-00-6	232-140-5	K_2CrO_4	Potassium chromate is used as a corrosion inhibitor for treatment and coating of metals, for manufacture of reagents, chemicals and textiles, as a colouring agent in ceramics, in the manufacture of pigments/inks and in the laboratory as analytical agent.
Potassium dichromate	Chromic acid $[H_2Cr_2O_7]$ dipotassium salt, dichromic acid dipotassium salt, dipotassium bichromate, dipotassium dichromate, Lopeptide, potassium bichromate, potassium dichromate(VI), dipotassium dichromium hepta-oxide	7778-50-9	231-906-6	$K_2Cr_2O_7$	Potassium dichromate is used for chrome metal manufacturing and as corrosion inhibitor for treatment and coating of metals. It is further used as textile mordant, as laboratory analytical agent, for cleaning of laboratory glassware, in the manufacture of other reagents and as oxidising agent in photolithography.
Sodium chromate	Dipotassium dichromate, Sodium monochromate, Disodium chromium tetraoxide	7775-11-3	231-889-5	Na_2CrO_4	Sodium chromate is mainly used as an intermediate in the manufacture of other chromium compounds as well as a laboratory analytical agent, but this use is limited. Other potential uses are mentioned in the literature but whether they occur in the EU is not clear.
Tetraboron disodium heptaoxide, hydrate		12267-73-1	235-541-3	$B_4Na_2O_7 \cdot xH_2O$	Disodium tetraborate and tetraboron disodium heptaoxide form the same compounds in aqueous solutions. Uses include a multitude of applications, for example, in detergents and cleaners, in glass and glass fibres, ceramics, industrial fluids, metallurgy, adhesives, flame retardants, personal care products, biocides, fertilisers.
Trichloroethylene	Acetylene trichloride, Ethinyl trichloride, Trichloroethene, TRI, TRIC, 1-Chloro-2,2-dichloroethylene, 1,1,2-Trichloroethylene, Trilene, Triklone®, Trimar. Industrial abbreviations include trichloroethylene, trichlor, Trike, Tricky and trichloroethylene.	79-01-6	201-167-4	C_2HCl_3	Trichloroethylene is mainly used as intermediate in the manufacture of chlorinated and fluorinated organic compounds. Other uses are for cleaning and degreasing of metal parts or as solvent in adhesives.
Chromium trioxide	Trioxochromium	1333-82-0	215-607-8	CrO_3	Formulation of mixtures containing chromium trioxide, which are mainly used for example, metal finishing/surface treatment or in much smaller amounts as catalysts containing chromium trioxide.
Acids generated from chromium trioxide and their oligomers	Dichromic acid $(H_2Cr_2O_7)$, hydroxy-(hydroxy(dioxo)chromio)oxy-dioxochromium, Chromic acid (H_2CrO_4) , dihydroxy(dioxo)chromium	13530-68-2 7738-94-5	236-881-5 231-801-5	$Cr_2H_2O_7$ CrH_2O_4	Chromic acid, dichromic acid and oligomers of chromic and dichromic acid are spontaneously generated products of the reaction of chromic trioxide with water. Refer to the uses for chromium trioxide.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Cobalt (II) sulphate	Sulfuric acid, cobalt(2+) salt (1:1),	10124-43-3	233-334-2	CoH ₂ O ₄ S	Mainly used in the production of other chemicals. Further applications may include manufacture of catalysts and driers, surface treatments (such as electroplating), corrosion prevention, production of pigments, decolorising (in glass, pottery), batteries, animal food supplement, soil fertilizer, and others.
Cobalt (II) dintrate		10141-05-6	233-402-1	CoN ₂ O ₆	Mainly used in the production of other chemicals and the manufacture of catalysts. Further applications may include surface treatment and batteries.
Cobalt (II) carbonate		513-79-1	208-169-4	CoCO ₃	Mainly used in the manufacture of chemicals, production of pigments, and adhesion (in ground coat frit).
Cobalt (II) diacetate	Cobalt di(acetate)	71-48-7	200-755-8	C ₄ H ₆ CoO ₄	Mainly used in the manufacture of catalysts. Minor uses may include production of other chemicals, surface treatment, alloys, production of pigments, dyes, rubber adhesion, and feed additive.
2-Methoxyethanol	ethylene glycol monomethyl ether; EGME, Ethanol, 2-methoxy-	109-86-4	203-713-7	C ₃ H ₈ O ₂	Mainly used as solvent and chemical intermediate.
2-Ethoxyethanol	ethylene glycol monoethyl ether; EGEE, Ethanol, 2-ethoxy-	110-80-5	203-804-1	C ₄ H ₁₀ O ₂	
2-ethoxyethyl acetate	Ethanol, 2-ethoxy-, acetate, Ethylglycol acetate; ethylene glycol mono ethyl ether acetate; 2-EEA; acetic acid, 2-ethoxyethyl ester; ethoxyethanol acetate	111-15-9	203-839-2	C ₆ H ₁₂ O ₃	
Strontium chromate	Chromic acid (H ₂ CrO ₄), strontium salt (1:1), Chromium diiododioxo-strontium salt (1:1), C.I. Pigment Yellow 32, Deep Lemon Yellow, Strontium chromate (VI), Strontium Yellow	7789-06-2	232-142-6	SrCrO ₄	As corrosion inhibitor in coating mixtures used in the aeronautic / aerospace sector, in the coil coating sector of steel and aluminium and in the vehicle coating sector.
1,2-Benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters	Di-C ₇₋₁₁ -(linear and branched)-alkyl phthalate, Dialkyl phthalate (C ₇₋₁₁) branched and linear phthalate ester; 711P; D711P; Di-711-phthalate; Dialkyl(C ₇₋₁₁ -branched and linear) phthalate (DHNUP); Di(heptyl, nonyl, undecyl) phthalate (mixed isomers); Phthalic acid, dialkyl (C ₇₋₁₁) ester; Santicizer 711	68515-42-4	271-084-6	C ₂₂ H ₃₄ O ₄ – C ₃₀ H ₅₀ O ₄	As plasticiser in PVC, foam, adhesives and coatings.
hydrazine	H ₂ O; H ₂ O (fuel); Levoxine; Nitrogen hydride(N ₂ H ₄);Oxytreat 35	7803-57-8 302-01-2 10217-52-4	206-114-9	H ₄ N ₂	As intermediate in the manufacture of hydrazine derivatives, as a monomer in polymerisations, as a corrosion inhibitor in water treatment and for metal reduction and refining of chemicals. It is also used as a propellant for aerospace vehicles and as fuel in military (emergency) power units.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
1-methyl-2-pyrrolidone	2-Pyrrolidinone, 1-methyl-, 1-Methylpyrrolidin-2-one, 1-Methyl-2-pyrrolidinone 1-Methyl-5-pyrrolidinone 1-Methylazacyclopentan-2-one 1-Methylpyrrolidone AgsoEx 1 M-Pyrrol Microposit 2001 N 0131 N-Methyl- α -pyrrolidinone N-Methyl- α -pyrrolidone N-Methyl- γ -butyrolactam N-Methyl-2-ketopyrrolidine N-Methyl-2-pyrrolidinone N-Methyl-2-pyrrolidone N-Methylbutyrolactam N-Methylpyrrolidone NMP NSC 4594 Pharmasolve Pyrrol M SL 1332	872-50-4	212-828-1	C ₅ H ₉ NO	As solvent in coatings, cleaning products, for electronic equipment manufacture, as well as in semiconductor industry, petrochemical processing, pharmaceuticals and agrochemicals.
1,2,3-trichloropropane	Propane, 1,2,3-trichloro-, Allyl trichloride; Glycerol trichlorohydrin; Glyceryl trichlorohydrin; NSC 35403; Trichlorohydrin;	96-18-4	202-486-1	C ₃ H ₅ Cl ₃	Intermediate in the manufacture of chlorinated solvents and agricultural products. It is also used as monomer. In the past, it was used as solvent, paint and varnish remover and as degreasing agent.
1,2-Benzenedicarboxylic acid, di-C ₆ -8-branched alkyl esters, C7-rich	C ₆ -8-(branched)-Alkyl benzene-1,2-dicarboxylate, C ₆ -8-(branched)-Alkyl phthalate, Diisooctyl phthalate, DHP	71888-89-6	276-158-1		As plasticiser in PVC and in sealants, coatings and potentially printing inks.
Dichromium tris(chromate)	Chromic acid (H ₂ CrO ₄), chromium(3+) salt (3:2), Dichromium(3+) trichromate, Chromic chromate, Chromium (III) chromate, Dichromium Trischromate, Accomet C; other trade names are confidential	24613-89-6	246-356-2	C ₇ H ₅ O ₁₂ C ₇ H ₅ O ₄ .2/3Cr	In mixtures for metal surface treatment in the aeronautic/aerospace, steel, and aluminium coating industries.
Potassium hydroxyoctaoxodizincatedi-chromate	Zinc chromate hydroxide (Zn ₅ (CrO ₄)(OH) ₈), Zinc tetraoxochromate, Zinc tetroxy chromate, Zinc chromate, hydroxide, Basic zinc chromate, Zinc chromate, Trizinc, dioxido(dioxo)chromium dihydroxide	11103-86-9	234-329-8		Aeronautic/ aerospace coating, steel and aluminium coil coating, and vehicle coating.
Pentazinc chromate octahydroxide		49663-84-5	256-418-0	CrH ₃ O ₁₂ Zn ₅	Vehicle coating and aeronautic / aerospace coating.
Formaldehyde, oligomeric reaction products with aniline (technical MDA)	Formaldehyde, polymer with benzenamine, polymeric MDA3, PMDA, MDA, technical grade, crude MDA	25214-70-4	500-036-1	(C ₆ H ₇ N.C ₂ H ₂ O) _x	Manufacture of other substances. Minor uses are as ion exchange resins in nuclear power plants, as hardener for epoxy resins.
Bis(2-methoxyethyl) phthalate	1,2-Benzenedicarboxylic acid, 1,2-bis(2-methoxyethyl) ester, Di(methoxyethyl) phthalate, Bis(methylglycol) phthalate, Benzenamine, 2-methoxy-, 2-methoxybenzenamine	117-82-8	204-212-6	C ₁₄ H ₁₈ O ₆	Plasticiser in polymeric materials and paints, lacquers and varnishes, including printing inks.
Methoxyaniline; o-Anisidine	4-(2,4,4-trimethylpentan-2-yl)phenol, 4-(tert-Octylphenol)	90-04-0	201-963-1	C ₇ H ₉ NO	Manufacture of dyes for tattooing and coloration of paper, polymers and aluminium foil.
1,1,3,3-Tetramethylbutyl)phenol, 4-(tert-Octylphenol)		140-66-9	205-426-2	C ₁₄ H ₂₂ O	Manufacture of polymer preparations and of ethoxylate surfactants. Also used as a component in adhesives, coatings, inks and rubber articles.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
1,2-Dichloroethane	Ethane, 1,2-dichloro-, Ethylene dichloride, dichloroethylene, 1,2-DOE,, 1,2-EDC	107-06-2	203-458-1	C ₂ H ₄ Cl ₂	Manufacture of other substances. Minor uses as solvent in chemical and pharmaceutical industries.
Bis(2-methoxyethyl) ether	Ethane, 1,1'-oxybis[2-methoxy-, 1-methoxy-2-(2-methoxyethoxy)ethane, Diglyme, DEGDME, Diethyleneglycoldimethylether, Dimethyldiglycol, 2-(2-Methoxyethoxy)-1-methoxyethane, 2,5,8-Trioxanonane, Di(2, Methoxyethyl) ether, Dimethyl carbitol, Ether, bis(2-methoxyethyl), 1,1'-Oxybis[2-methoxyethane], Methyldiglyme, (CAS registry numbers still in use: 70-992-86-8, 54631-70-8, 142939-39-7 although deleted in CAS, registry)	111-96-6	203-924-4	C ₆ H ₁₄ O ₃	Used primarily as a reaction solvent or process chemical in a wide variety of applications. Also used as solvent for battery electrolytes, and possibly in sealants, adhesives, fuels and automotive care products.
Arsenic acid	Arsenic acid (H ₃ AsO ₄), arsenic acid, trihydrodioxidoarsenic (IUPAC 2005), Orthoarsenic acid	7778-39-4	231-901-9	AsH ₃ O ₄	Mainly used to remove gas bubbles from ceramic glass melt (fining agent) and in production of laminated printed circuit boards. Also used in the manufacture of semiconductors and as laboratory agent.
Calcium arsenate	Arsenic acid (H ₃ AsO ₄), calcium salt (2:3), Tricalcium(2+) diarsenate, Arsenic acid calcium salt; calcium orthoarsenate; tricalcium arsenate	7778-44-1	231-904-5	As ₂ Ca ₃ O ₈	Present in complex raw materials that are used mainly for copper and lead refining. Also used to precipitate nickel from the molten metal and to manufacture diarsenic trioxide.
Trilead diarsenate	Arsenic acid (H ₃ AsO ₄), lead salt (2:3), Trilead (2+) diarsenate, Lead (II) arsenate, lead arsenate	3687-31-8	222-979-5	As ₂ O ₈ Pb ₃	Present in complex raw materials for manufacture of copper, lead and a range of precious metals.
N,N-dimethylacetamide (DMAC)	Acetamide, N,N-dimethyl-, Acetdimethylamide, DMA, DMAA, DMAc, Dimethylamide acetate, N,N-Dimethylethanamide	127-19-5	204-826-4	C ₄ H ₉ N O	Used as solvent, mainly in the manufacture of various substances and in the production of fibres for clothing. Also used as reagent, and in products such as industrial coatings, insulation paper, polyimide films, paint strippers and ink removers.
2,2'-Dichloro-4,4'-methylene-dianiline (MOCA)	4,4'-methylenebis[2-chloroaniline], Benzenamine, 4,4'-methylenebis[2-chloro-, Bisamine A, 2,2'-Dichloro-4,4'-methylenedianiline, 3,3'-Dichloro-4,4'-diaminodiphenylmethane, Bis(4-amino-3-chlorophenyl)methane	101-14-4	202-918-9	C ₁₃ H ₁₂ Cl ₂ N ₂	Mainly used as curing agent in resins and in the production of polymer articles and also for manufacture of other substances.
Phenolphthalein	1(3H)-Isobenzofuranone, 3,3-bis(4-hydroxyphenyl)-; 3,3-Bis(4-hydroxyphenyl)-2-benzofuran-1(3H)-one; 3,3-Bis(p-hydroxyphenyl)phthalide; 3,3-Bis(4-hydroxyphenyl)phthalide; 3,3-Bis(4-hydroxyphenyl)-1(3H)-isobenzofuranone	77-09-8	201-004-7	C ₂₀ H ₁₄ O ₄	Mainly used as laboratory agent (pH indicator solutions). Minor uses are in pharmaceutical preparations and in some special applications.
Lead azide Lead diazide	Lead azide (Pb(N ₃) ₂); Lead(2+) diazide	13424-46-9	236-542-1	N ₆ Pb	Mainly used as initiator or booster in detonators for both civilian and military uses and as initiator in pyrotechnic devices.
Lead styphnate	lead 2,4,6-trinitro-m-phenylene dioxide; 1,3-Benzenediol, 2,4,6-trinitro-, lead(2+) salt (1:1); Lead(2+) 2,4,6-trinitrobenzene-1,3-diolate; 2,4-Dioxa-3-plumbabicyclo[3.3.1]nona-1(9),5,7-triene; 3,3-didehydro-6,8,9-trinitro-, Lead, [styphnato(2-)]-, Resorcinol, 2,4,6-trinitro-, lead(2+) salt (1:1); Lead styphnate; Lead tricinat; Lead trinitroresorcinat; Tricinat	15245-44-0	239-290-0	C ₆ H N ₃ O ₈ Pb	Mainly used as a primer for small calibre and rifle ammunition. Other common uses are in ammunition pyrotechnics, powder actuated devices and detonators for civilian use.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Lead dipicrate	Phenol, 2,4,6-trinitro-, lead(2+) salt (2:1); Lead(2+) bis(2,4,6-trinitrophenolate); Lead, bis(picryloxy)-; Picric acid, lead(2+) salt; Lead(II) picrate	6477-64-1	229-335-2	C ₁₂ H ₄ N ₆ O ₁₄ Pb	The substance is an explosive like lead diazide and lead styphnate.
1,2-bis(2-Methoxyethoxy)ethane (TEGDME; triglyme)	2,5,8,11-tetraoxadodecane; Triglyme; TEGDME Triethylene glycol dimethyl ether; Ansul Ether 161; DMTG; Ethane, 1,2-bis(2-methoxyethoxy)-; Glyme 4; Hisolve MTM; Methyltriglyme; NSC 66400	112-49-2	203-977-3	C ₈ H ₁₈ O ₄	Triglyme is used as an inert solvent for grignard-, reduction- and alkylation-reactions. Reactions involving alkali metals can be carried out in triglyme and alkali metal dispersions in triglyme are used for etching of Teflon and Fluoropolymers. Triglyme is also used as an inert solvent for reduction reactions using Sodium borohydride and used as a solvent to carry out methylation reactions using dimethyl carbonate (and other dialkyl carbonates). Triglyme is also used as part of absorbing liquids in the industrial cleaning of gases. Triglyme has been reported to be used in Brake fluids.
1,2-Dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	Ethane, 1,2-dimethoxy-, EGDME; Ethylene glycol dimethyl ether; 1,2-Dimethoxyethane; 1,2-Ethanediol, dimethyl ether; 2,5-Dioxahexane; DME; DME (glycol ether); Dimethyl Cellosolve; Ethylene dimethyl ether; Glycol dimethyl ether; Glyme; Hisolve MMM; Monoethylene glycol dimethyl ether; Monoglyme; NSC 60542; α,β-Dimethoxyethane.	110-71-4	203-794-9	C ₄ H ₁₀ O ₂	EGDME is used as a solvent or processing aid in the manufacture or formulation of industrial chemicals. The large majority of the EGDME sold by the producer is used as a site limited processing aid for industrial chemical manufacture.
Ammoniumpentadecafluorotanoate (APFO)	APFO	3825-26-1	223-320-4	C ₈ H ₄ NF ₁₅ NO ₂	PFOA is used as a group name for PFOA and its salts, and PFOA is mainly produced and used as its ammonium salt, ammoniumpentadecafluorotanoate (APFO, CAS Number: 3825-26-1). However, the perfluorooctanoate anion is the molecule of primary interest. APFO and PFOA are sometimes used interchangeably as both PFO-anion and PFOA (neutral species) exist in solution.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
C.I. Basic Blue 26 ([4-[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylenecyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride)	Methanaminium, N-[4-[4-(dimethylamino)phenyl][4-(phenylamino)-1-naphthalenyl]methylenecyclohexa-2,5-dien-1-ylidene]-N-methyl-, chloride (1:1); 4-[[4-(dimethylamino)phenyl][4-(phenylamino)naphthalen-1-yl]methylenecyclohexa-2,5-dien-1-iminium Chloride; C.I. Basic Blue 26; Methanaminium, N-[4-[4-(dimethylamino)phenyl][4-(phenylamino)-1-naphthalenyl]methylenecyclohexa-2,5-dien-1-ylidene]-N-methyl-, chloride; Victoria Blue B; ADC Victoria Blue B; Aizen Victoria Blue BH; BTK Victoria Blue; Basazol C Blue 57; Basic Blue; 26; Basic Blue B; Basic Victoria Blue B; Basonyl Blue 640; Basonyl Blue 644; Basovict Victoria Blue; C-WR Blue 8; C.I. 44045; Calcozine Blue B; Conbasic Blue AK; Dycosbasic Victoria Blue B; Flexo Blue 630; Flexo Blue 640; Hecto Blue B; Hidaco Victoria Blue B; Libbase Victoria Blue LB; Lowacryl Blue 26; Mitsui Victoria Blue B; Ravi Victoria Blue ; Tertrophene Blue; Victoria Blue; Victoria Blue 2B; Victoria Blue B 353; Victoria Blue B chloride; Victoria Blue BA; Victoria Blue BH; Victoria Blue BN; Victoria Blue BN C1 44045; Victoria Blue BP; Victoria Blue BS; Victoria Blue BSA; Victoria Blue BX; Victoria Blue FB; Victoria Pure Blue B; Victoria Pure Blue BC	2580-56-5	219-943-6	$C_{33}H_{32}ClN_3$	Basic Blue 26 is used in inks, dyes, paints, and pigments. Among potential uses registered by companies in the Colour Index (2012)7, for products (dyestuff) containing Basic Blue 26, are in printing inks (according to Gessner and Mayer, 2000, melted in oleic or stearic acid), spirit inks, and pigments. According to Denmal et al. (2010), blue and black ball point pen inks may contain Basic Blue 26; with around 80% of blue and black ball point pen inks containing "Basic Violet 3 and its homologues".
C.I. Basic Violet 3	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride; Methanaminium, N-[4-[bis[4-(dimethylamino)phenyl]methylenecyclohexa-2,5-dien-1-ylidene]-N-methyl-, chloride(1:1); 4-[Bis[4-(dimethylamino)phenyl]methylenecyclohexa-2,5-dien-1-iminium; Chloride; Basic Violet 3; Crystal Violet Technical; Crystal Violet USP; Gintersal; Gentian violet; Gentian Violet B; Gentiavern; Genticiid; Gentioletten; Hecto Violet R; Hectograph Violet SR; Hexamethyl violet; Hexamethyl-p-rosaniline chloride; Hexamethylpararosaniline chloride	548-62-9	208-953-6	$C_{25}H_{30}ClN_3$	The main uses of C.I. Basic Violet 3 are as a dye in ink applied in cartridges for printers and in ball pens and as dyestuff for paper colouring. Minor dyestuff uses include carbon papers (where dyestuff is suspended in wax and applied to a thin impregnated paper), staining of dried flowers/plants (dried plants dyed by immersion in a hot water solution of the dyestuff) and as a marker (i.e. where dyestuff is used to improve the visibility of a liquid). Furthermore, C.I. Basic Violet 3 is used in microbial and clinical laboratories (for example, as stain to distinguish gram negative from gram positive bacteria) in presumably thousands of laboratories and teaching institutions around Europe.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
C.I. Solvent Blue 4;(α,α-bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol);	[4-(Dimet; hylamino)-5,8-dihydronaphthalen-1-yl]bis[4-(dimethylamino)phenyl]methanol; Victoria Blue B; Base B Baso Blue 645; Aizen Victoria Blue B Base; Brilliant Oil Blue B Base; C.I. 44045B; Fast Oil Blue B Base; Victoria Blue B Base; - Victoria Blue BA Base; Victoria Blue BDP Base; Victoria Blue Base; Victoria Blue Base B; Victoria Blue Base FB; Waxoline Victoria Blue B	6786-83-0	229-851-8	C ₃₃ H ₃₃ N ₃ O	The main use of the substance is in the production of inks.
C.I. Solvent Violet 8;(4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol)	Benzenemethanol, α,α-bis[4-(dimethylamino)phenyl]-4-(methylamino)-; Bis[4-(dimethylamino)phenyl]4-(methylamino)phenylmethanol;	561-41-1	209-218-2	C ₂₄ H ₂₉ N ₃ O	Uses of 4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol are as formulation and production of writing inks.
Di-n-pentyl phthalate	Boron oxide (B ₂ O ₃); diboron trioxide	131-18-0	205-017-9	B ₂ O ₃	Undetermined
Diboron trioxide, boric oxide		1303-86-2	215-125-8		Undetermined
Diisopentylphthalate		605-50-5	210-088-4		Undetermined
Distillates (coal tar), heavy oils		90640-86-1	292-607-4		Undetermined
Distillates (coal tar), heavy oils, pyrene fraction		91995-42-5	295-304-5		Undetermined
Distillates (coal tar), pitch, pyrene fraction		91995-52-7	295-313-4	Undetermined	Undetermined
Formamide		75-12-7	200-842-0	CH ₃ NO	Although formamide is not registered for consumer use it was measured in toys like wooden toys (Danish EPA, 2005) and foam puzzle mats as well as in fitness and exercise mats which are made of ethylene vinyl acetate (EVA). Undetermined
Further Arsenic compounds					
Lead(II) bis(methanesulfonate)	Methanesulfonic acid, lead(2+) salt (2-1); Methanesulfonic acid, lead(2+) salt; Lead methane sulphonate; Lead salt FP (trade name); Methanesulfonic acid, lead(2+) salt; Lead Methane Sulfate; Imethanesulfonic acid, lead(II) salt; Lead methyl sulfonate	17570-76-2	401-750-5	C ₂ H ₆ O ₆ PbS ₂	Methanesulphonic acid-based plating technology is the dominant electrolytic plating process for high-speed reel-to-reel processing of electronic components.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Michler's Base; (N,N',N'-tetramethyl-4,4'-methylene dianiline)	Benzenamine, 4,4'-methylenebis[N,N'-dimethyl-; 4,4'-methylenebis[N,N'-dimethylaniline]; Aniline, 4,4'-methylenebis[N,N'-dimethyl- (6Cl,7Cl,8Cl); Aniline, p,p'-methylene di- (4Cl); 4,4'- (Dimethylamino)diphenylmethane; 4,4'-Bis(dimethylamino)diphenylmethane; 4,4'-Bis(dimethylaminophenyl)methane; 4,4'-Methylenebis[N,N'-dimethylaniline]; 4,4'-Methylenebis[N,N'-dimethylbenzenamine]; 4,4'-Tetramethyldiaminodiphenylmethane; Arnold's base; Bis[4-(N,N'-dimethylamino)phenyl]methane; Bis[4-(dimethylamino)phenyl]methane; Bis[p-(N,N'-dimethylamino)phenyl]methane; Bis[p-(dimethylamino)phenyl]methane; Michler's Base; Michler's hydride; Michler's methane; N,N,N',N'-Tetramethyl-4,4'-methylenedianiline; N,N,N',N'-Tetramethyl-4,4'-diaminodiphenylmethane; N,N,N',N'-Tetramethyl-p,p'-diaminodiphenylmethane; NSC 36782; NSC 4892; NSC 9029; Reduced Michler's ketone; Tetrabase; Tetramethyldiaminodiphenylmethane; p,p'-Bis(dimethylamino)diphenylmethane; p,p'-Tetramethyldiaminodiphenylmethane	101-61-1	202-959-2	C ₁₇ H ₂₂ N ₂	Used as chemical intermediate in the manufacture of dyes and pigments, also used as chemical intermediate in the manufacture of its hydrochloric salt. The latter is used as an analytical reagent for the determination of lead.
Michler's Ketone; (4,4'-bis(dimethylamino) benzophenone)	Methanone, bis[4-(dimethylamino)phenyl]; bis[4-(dimethylamino)phenyl]methanone; Benzophenone, 4,4'-bis(dimethylamino)- (6Cl,8Cl); 4,4'-Bis(N,N'-dimethylamino)benzophenone; 4,4'-Bis(dimethylamino)benzophenone; Tetramethyldiaminobenzophenone; Bis[4-(dimethylamino)phenyl]methanone; Bis[p-(N,N'-dimethylamino)phenyl] ketone; DABP; Di(p-dimethylamino)benzophenone; Michler's ketone; N,N,N',N'-Tetramethyl-4,4'-diaminobenzophenone; NSC 9602; Nisso Cure MABP; S 112; S 112 (ketone); p,p'-Bis(dimethylamino)benzophenone; p,p'-Tetramethyldiaminobenzophenone	90-94-8	202-027-5	C ₁₇ H ₂₀ N ₂ O	Michler's ketone is an important intermediate in the manufacture of triphenylmethane dyes.
Perfluorooctanoic acid (PFOA)	Pentadecafluorooctanoic acid	335-67-1	206-397-9	C ₈ HF ₁₅ O ₂ (PFOA)	PFOA is used in a variety of commercial applications as refrigerants, surfactants and polymers, and as components of pharmaceuticals, fire retardants, lubricants, adhesives, paints, cosmetics, paper coatings, and insecticides.
Residues (coal tar), pitch distn.		92061-94-4	295-507-9		Undetermined



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	1,3,5-Triazine-2,4,6-(1H,3H,5H)-trione, 1,3,5-tris(2-oxiranylmethyl)- (a combination of α and β isomers of TGIC); 1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazine-2,4,6-trione (a combination of α and β -isomers); triglycidyl isocyanurate; TGIC; 1,3,5-triglycidyl isocyanurate; 1,3,5-triglycidyl-s-triazinetriene; 1,3,5-tris(2,3-epoxypropyl)-s-triazine-2,4,6-(1H,3H,5H)-trione; tris(2,3-epoxypropyl)isocyanurate; 1,3,5-Triglycidylhexahydro-1,3,5-triazine-2,4,6-trione; 1,3,5-Triglycidylisocyanuric acid; 1,3,5-Tris(2,3-epoxypropyl) isocyanurate; 1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazine-2,4,6-trione; 1,3,5-Tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-trione; Glycidyl isocyanurate; N,N'-N"-Triglycidyl isocyanurate; NSC 269934; PTGIC; TGT; Triglycidyl isocyanurate; Tris(2,3-epoxypropyl) isocyanurate; Tris(epoxypropyl) isocyanurate; TEPIC; Araldite PT 810; TK 10622	2451-62-9	219-514-3	$C_{12}H_{15}N_3O_6$	TGIC is an epoxy compound that is used as a hardener in resins and coatings. The main use is in polyester powder coatings for metal finishing.
β -TGIC; (1,3,5-tris(2S and 2R)-2,3-epoxypropyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	1,3,5-Triazine-2,4,6-(1H,3H,5H)-trione, 1,3,5-tris[(2R)-2-oxiranylmethyl]-, rel.; reaction mass of 1,3,5-tris[(2R)-oxiran-2-ylmethyl]-1,3,5-triazine-2,4,6-trione and 1,3,5-tris[(2S)-oxiran-2-ylmethyl]-1,3,5-triazine-2,4,6-trione; triglycidyl isocyanurate; TGIC; 1,3,5-triglycidyl isocyanurate; 1,3,5-triglycidyl-s-triazinetriene; 1,3,5-tris(2,3-epoxypropyl)-s-triazine-2,4,6-(1H,3H,5H)-trione; tris(2,3-epoxypropyl)isocyanurate; β -Triglycidyl isocyanates; NSC 296964; TEPIC-H	59653-74-6	423-400-0	$C_{12}H_{15}N_3O_6$	TGIC is an epoxy compound that is used as a hardener in resins and coatings. The main use is in polyester powder coatings for metal finishing.
Cadmium	Cd rod Cd stangen kadmium stangen	7440-43-9	231-152-8	Cd	In the environment cadmium is mainly associated with zinc but also with lead and copper. Anthropogenic sources include by-products of the metallurgy of these elements. The release of cadmium into the human environment occurs via emission from mining activities and metal industries (the smelting of other metals), the combustion of fossil fuels, the incineration of waste materials or inappropriate waste disposal, leaching from landfill sites and the use of cadmium-rich phosphate fertilizers and sewage sludge. These anthropogenic activities have contributed to the contamination by cadmium of the food chain. However, there are also areas with naturally elevated cadmium concentrations in soil. Because cadmium is easily taken up by many plants, plant-based food, in particular wheat, rice and potatoes, is a major source of exposure to cadmium. Another source of exposure is tobacco smoking, mainly because the absorption in the lungs is higher than in the gastrointestinal tract.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Dipentyl phthalate (DPP)	1,2-Benzenedicarboxylic acid, 1,2-dipentyl ester 1,2-Benzenedicarboxylic acid, dipentyl ester Anoil Amil phthalate Di-N-Pentyl Phthalate Di-n-pentylphthalatediamyl phthalate Dipentyl 1,2-benzenedicarboxylate Dipentyl phthalate Phthalic acid, diamyl ester Phthalic acid, dipentyl ester di-n-pentylphthalate Diamyl Phthalate Dipentyl phthalate	131-18-0	205-017-9	C ₁₈ H ₂₆ O ₄	Phthalates in general are used in a large variety of products, from enteric coatings of pharmaceutical pills and nutritional supplements to viscosity control agents, gelling agents, film formers, stabilizers, dispersants, lubricants, binders, emulsifying agents, and suspending agents. End-applications include adhesives and glues, agricultural adjuvants, building materials, personal-care products, medical devices, detergents and surfactants, packaging, children's toys, modeling clay, waxes, paints, printing inks and coatings, pharmaceuticals, food products, and textiles. Phthalates are also frequently used in soft plastic fishing lures, caulk, paint and pigments. Phthalates are used in a variety of household applications such as shower curtains, vinyl upholstery, adhesives, floor tiles, food containers and wrappers, and cleaning materials. Personal-care items containing phthalates include perfume, eye shadow, moisturizer, nail polish, liquid soap, and hair spray. They are also found in modern electronics and medical applications such as catheters and blood transfusion devices.
4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]		Including 26027-38-3 7311-27-5 20427-84-3 34166-38-6 27942-27-4 14409-72-4	Including 230-770-5 243-816-4 248-743-1	(C ₂ H ₄ O) _n C ₁₅ H ₂₄ O ₁ with n ≥ 1 Including (C ₂ H ₄ O) _n C ₁₅ H ₂₄ O C ₂₃ H ₄₀ O ₅ C ₁₉ H ₃₂ O ₃ C ₂₇ H ₄₈ O ₇ C ₂₉ H ₅₂ O ₈ C ₃₃ H ₆₀ O ₁₀	4-Nonylphenol, branched and linear, ethoxylated (4-NPnEO) degrade to 4-Nonylphenol, branched and linear, either already in wastewater treatment plants, or via further degradation processes in sediments (e.g. of aquatic bodies receiving the wastewater effluents) and soils (e.g. receiving sewage sludge). Available information for 4-NPnEO indicate that 4-NPnEO contribute to the 4-NP concentration in the environment. A significant amount is either degraded to 4-NP itself in waste water treatment plants or is released to rivers in a form which may undergo further degradation to 4-NP. According to available data from sewage treatment plants, 4-NP formed from degradation of 4-NPnEO is responsible for an increase of the 4-NP load to the environment (soil, sediment and water) by 54 to 758 %. Sediment organisms may be exposed to 4-NP, which results from the degradation of 4-NPnEO, either directly, downstream of the effluent, or in the longer term after its adsorption to sediment and soil. Similar holds true for pelagic organisms such as fish which may be exposed via remobilization of 4-NP from sediment to the water body.
Cadmium oxide	Cadmium(II)oxide Cadmium monoxide Monteponite Tienek kadmu	1306-19-0 12139-21-8 (Monteponite (CdO))	215-146-2	CdO	Cadmium is a natural element, which is present in all environmental compartments (as Cd ⁺⁺). Cadmium emissions to the environment may therefore arise from both natural and anthropogenic or man-made sources. Estimates of the proportion of total cadmium emissions due to natural sources have ranged from 10 % to 50 %. Some of these natural emission sources include weathering and erosion of parent rocks, volcanic activity and forest fires (ICdA 2012). The overall cadmium anthropogenic exposure is then in the range of 50 to 90 %. When cadmium ions are present in the environment, they will interact with the environmental matrix and biota. The fate will depend on processes like dissolution, absorption, precipitation, complexation, inclusion into (soil) matrix, etc. In freshwater or seawater cadmium may occur in both suspended and dissolved forms and is partitioned over a number of chemical species. In the water, cadmium interacts with components of the water and influences the bioavailability. In sediment, cadmium binds to the sulphide fraction to form less soluble CdS.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	MHHPA HN-5500 Methylhexahydrophthalic anhydride Hexahydromethylphthalic anhydride 1,3-Isobenzofuranedion, hexahydromethyl	25550-51-0 19438-60-9 48122-14-1 57110-29-9	247-094-1 243-072-0 256-356-4 260-566-1	C ₉ H ₁₂ O ₃	MHHPA is a thermo-setting epoxy resin curing agent mainly used in electric and electron field. MHHPA is widely used for impregnating electrical coils, casting electricity components and sealing semiconductors, e.g. outdoor insulators, capacitors, light emitting diodes and digital displays. MHHPA is commonly used in a specific mixture with HHPA.
6-methoxy-m-toluidine (p-cresidine)	Benzenamine, 2-methoxy-5-methyl-Anisidine, 5-methyl-1-Amino-2-methoxy-5-methylbenzene 2-Methoxy-5-methylaniline 2-Methoxy-5-methylbenzenamine 3-Amino-4-methoxytoluene 3-Methyl-6-methoxyaniline 4-Methyl-2-aminoanisole 5-Methyl-2-methoxyaniline 5-Methyl-o-anisidine 6-Methoxy-m-toluidine Cresidine Krezidin m-Amino-p-cresol methyl ether	120-71-8	204-419-1	C ₈ H ₁₁ NO	P-Cresidine is used exclusively as a synthetic chemical intermediate to produce azo dyes and pigments, such as Direct Orange 72, FD&C Red 40, and Direct Violet 9. These dyes are produced commercially in the United States and are used in the textile industry. P-Cresidine was selected for bioassay by the National Cancer Institute in response to the high incidence of bladder cancer observed among dye manufacturing industry workers.
Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans- isomers [1] are covered by this entry]	hexahydro-2-benzofuran-1,3-dione HHPA Hexahydro-isobenzofuran-1,3-dione Hexahydrophthalic anhydride Cyclohexane-1,2-dicarboxylic anhydride 1,3-Isobenzofuranedione, hexahydro- 1,2-Cyclohexanedicarboxylic Anhydride 1,3-Isobenzofuranedione, hexahydro-, (3aR,7aR)-rel- (3aR,7aR')-Hexahydro-2-benzofuran-1,3-dione trans-Cyclohexane-1,2-dicarboxylic anhydride Hexahydro-2-benzofuran-1,3-dione, trans	85-42-7 13149-00-3 14166-21-3 Including 95327-28-9 102483-85-2 109265-67-0 117276-22-9 97233-90-4 128049-67-2	201-604-9 236-086-3 238-009-9	C ₈ H ₁₀ O ₃	The substance can be found in plant producing capacitors, fixed and isolated with epoxy resin with HHPA and MHHPA as hardeners.
Pyrochlore, antimony lead yellow	C.I. Pigment Yellow 41 Lead antimonite Antimony lead yellow Antimony yellow C.I. 77588 Lead antimonate yellow Lead antimonate yellow pyrochlore Lead antimony yellow pyrochlore Naples yellow Pigment Yellow 41 Siccer F Orange 2208 Henicosafuoroundecanoic acid C11-PFCA Perfluoroundecanoic acid Perfluoroundecylic acid	8012-00-8	232-382-1		It is a poisonous, water-insoluble orange-yellow powder, used as a paint pigment and to stain glass and ceramics.
Henicosafuoroundecanoic acid		2058-94-8 110961-38-1	218-165-4	C ₁₁ HF ₂₁ O ₂	Perfluoroalkyls are stable unique chemicals that they repel oil, grease, and water. They have been used in surface protection products such as carpet and clothing treatments and coatings for paper and cardboard packaging. Perfluoroalkyls have been used in fire-fighting foams.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
4-Aminoazobenzene	Benzenamine, 4-(2-phenyldiazenyl)- 4-(Phenylazo)aniline Benzenamine, 4-(phenylazo)- C.I. Solvent Yellow 1 4-(Phenylazo)aniline 4-(Phenylazo)benzenamine; 4-Aminoazobenzene 4-Aminoazobenzol Aniline yellow; Brasilazina Oil Yellow G; p-(Phenylazo)aniline p-Aminoazobenzene p-Aminoazobenzol p-Aminodiphenylimide Lead(2+) silicate	60-09-3	200-453-6	$C_{12}H_{11}N_3$	It is used in the form of its salts as a dye and as an intermediate in manufacture of Acid Yellow, diazo dyes, and indulines.
Silicic acid, lead salt		11120-22-2	234-363-3	O_3PbSi	It is used in ceramics and fireproofing fabrics. This material is used as anti-X-ray absorbers CP-T, but also for the glass enamel industry. It is an important raw material and intermediate used in Organic Synthesis, Pharmaceuticals, and Agrochemicals. It is used in electronics (stereos, transducers, computer memory, ceramic filters, resonators, traps, piezoelectric).
Lead titanium zirconium oxide	Lead titanium zirconium oxide ($PbTi_1ZrO_3$) Lead titanium zirconium trioxide Lead titanate zirconate Lead titanate zirconate ($Pb(Ti,Zr)O_3$) Lead titanate zirconate ($PbTiO_3$ - ZrO_3) Lead titanium zirconium oxide ($PbTiO_3$ - ZrO_3) Lead zirconate titanate	12626-81-2	235-727-4	($Pbx Tiy Zrz$) O_3	
Lead monoxide (lead oxide)	C.I. 77577 C.I. Pigment Yellow 46 Lead monoxide Lead oxide Lead oxide yellow Lead protioxide Lead(2+) oxide Lead(II) oxide Pigment Yellow 46 Plumbous oxide Yellow lead ochre Benzenamine, 2-methyl- 2-Methylaniline 1-Amino-2-methylbenzene 2-Amino-1-methylbenzene 2-Aminotoluene 2-Methyl-1-aminobenzene 2-Methylphenylamine 2-Tolylamine o-Aminotoluene o-Methylaniline o-Methylbenzenamine Oxazolidine, 3-ethyl-2-methyl-2-(3-methylbutyl)- 3-oxazolidine Zoldine MS-PLUS	1317-36-8	215-267-0	OPb	It is used in lead-based industrial glass and industrial ceramics, including computer components. Other less dominating applications include the vulcanization of rubber and the production of certain pigments (e.g., litharge, massicot) and paints (yellow, exterior primers).
o-Toluidine		95-53-4	202-429-0	C_7H_9N	2-Toluidine is a commercially important aromatic amine used mainly for dye production, but also for the production of certain elastomers. 2-Toluidine is an intermediate for the production of soluble azo dyes and insoluble pigments used particularly in the textile, leather and paper industries. 2-Toluidine also widely used as a reagent or indicator in analytical, clinical and forensic chemistry, such as in the analytical determination of gold.
		143860-04-2	421-150-7	$C_{11}H_{23}NO$	It is a fast reacting, low viscosity oxazolidine-based moisture scavenger for use in urethane coatings, sealants and elastomers.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Dibutyltin dichloride (DBTC)	stannane, dibutylchloro-Axion CS 2430 DBTC Dibutyltin dichloride (DBTC)	683-18-1	211-670-0	$C_8H_{18}Cl_2Sn$	Dibutyltin dichloride (DBTC) is widely used as a stabilizer for polyvinylchloride plastics.
Lead bis(tetrafluoroborate)	Tin dibutyl-dichloride Borate(1-), tetrafluoro-, lead(2+) (2:1) Lead(2+) ditetrafluoroborate Borate(1-), tetrafluoro-, lead(2+) Lead fluoborate ($Pb(BF_4)_2$) Lead tetrafluoroborate ($Pb(BF_4)_2$) Lead boron fluoride Lead fluoroborate Lead fluoroborate ($Pb(BF_4)_2$) Lead(II) tetrafluoroborate	13814-96-5	237-486-0	B_2F_8Pb	Fluoroboric acid is used in plating circuits; metal finishing; electropolishing of aluminium and its alloy; component of galvanic baths; organic synthesis as catalyst for alkylations and polymerisation; stabilisation of diazo salts; manufacturing of inorganic fluoroborate salts. Inorganic fluoroborate salts are used as components of fluxing and plating, as catalysts, in flame-retardant manufacture, in metal treatment; grain refining agents; as active fillers in resin bonded abrasives; in electrolytic generation of boron, preparation of glazing frits. It is used as heat stabiliser in nylon and polyesters, as a coating for photothermographic paper, and in rodenticides.
Lead dinitrate	Nitric acid, lead(2+) salt (2:1) Lead(2+) dinitrate Nitric acid, lead(2+) salt Lead dinitrate; Lead nitrate; Lead nitrate ($Pb(NO_3)_2$); Lead(2+) bis(nitrate); Lead(2+) nitrate; Lead(II) dinitrate; Lead(II) nitrate; Plumbous nitrate	10099-74-8	233-245-9	N_2O_6Pb	
	Barium silicate, lead-doped	68784-75-8	272-271-5		It is used in specialty fluorescent lamps, particularly for tanning applications.

Silicic acid
($H_2Si_2O_5$), barium salt (1:1),
lead-doped [with lead (Pb) content
above the applicable generic
concentration limit for 'toxicity for
reproduction' Repr. 1A (CLP) or
category 1 (DSD); the substance
is a member of the group entry
of lead compounds, with index
number 082-001-00-6 in
regulation (EC) No 1272/2008]



TABLE 1 *Continued*

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Trilead bis(carbonate)dihydroxide	Lead carbonate hydroxide ($\text{Pb}_3(\text{CO}_3)_2(\text{OH})_2$)	1319-46-6	215-290-6	$\text{C}_2\text{H}_2\text{O}_8\text{Pb}_3$	Found naturally as the mineral hydrocerussite, it is used as pigment (exterior paints, ceramic glazes, temperature-sensitive inks, UV light reflective paints, and iridescent plastic sheets), catalyst for polyesters, curing agent for peroxides in polyethylene wire insulation, smudge-resistant film on electrically sensitive recording sheets, cool gun-propellant stabilizer, and heat stabilizer for PVC polymers. It is also used in lubricating greases, nylon-reinforced fish nets made from PVC fibers, cements, and for making putty and lead carbonate paper and parchment; no longer used as a white hiding pigment in paints.
	Lead(2+) carbonate hydroxide (3:2:2)				
	Lead carbonate ($2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$)				
	Lead carbonate hydroxide ($2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$)				
	Lead, bis(carbonato)dihydroxytri-				
	Lead, bis(carbonato)(2-)]				
	dihydroxytri-Almex				
	Basic carbonate white lead				
	Basic lead carbonate				
	Basic lead carbonate				
	($2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$)				
	Berlin White				
	C.I. 77597				
	C.I. Pigment White 1				
	Carbonic acid, lead salt, basic				
	Cremnitz White				
	Dutch White Lead				
	Enpaku				
	Flake White				
	Krens White				
	Lead carbonate hydroxide ($\text{Pb}_3(\text{OH})_2(\text{CO}_3)_2$)				
	Lead carbonate oxide ($\text{Pb}_3\text{O}(\text{CO}_3)_2$, monohydrate)				
	Lead hydroxide carbonate [$2\text{PbCO}_3 \cdot \text{Pb}(\text{OH})_2$]				
	Lead subcarbonate				
	Lead white				
	Novade				
	Roilite lead				
	Silver White				
	Slate White				
	Stabilisator 5012NS				
	Tricarbonatodihydroxytrilead				
	Venetian White				
	White Lead Wartburg				
	White lead				
	Benzenamine, 4,4'-methylenebis[2-methyl-	838-88-0	212-658-8	$\text{C}_{15}\text{H}_{18}\text{N}_2$	The azo-dyes are used in textiles and leather articles, as well as tattoos.
	4,4'-Methanediylbis(2-methylaniline)				
	Toluidine, 4,4'-methylenedi-				
	2,2'-Dimethyl-4,4'-methylenedianiline				
	3,3'-Dimethyl-4,4'-diaminodiphenylmethane				
	4,4'-Amino-3,3'-dimethyldiphenylmethane				
	4,4'-Diamino-3,3'-dimethyldiphenylmethane				
	4,4'-Methylenebis(o-toluidine)				
	4,4'-Methylenebis[2-methylaniline]				
	Bis(3-methyl-4-aminophenyl)methane				
	Bis(4-amino-3-methylphenyl)methane				
	Di(3-methyl-4-aminophenyl)methane				
	4,4'-methylenedi-o-toluidine				



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Diethyl sulphate	Sulfuric acid, diethyl ester Ethyl sulfate (Et ₂ SO ₄) DES	64-67-5	200-589-6	C ₄ H ₁₀ O ₄ S	Diethyl sulfate occurs as a colorless liquid with a peppermint odor. It is used as an alkylating agent to prepare ethyl derivatives of phenols, amines, and thiols.
Dimethyl sulphate	Ethyl sulfate Sulfuric acid, dimethyl ester	77-78-1	201-058-1	C ₂ H ₆ O ₄ S	It is mainly used as a methylating agent in organic synthesis. It is best known as a reagent for the methylation of phenols, amines, and thiols.
N,N-dimethylformamide	Formamide, N,N-dimethyl- Dimethylformamide DMF N,N-Dimethylformamide Formamide, N,N-dimethyl- (8Cl, 9Cl) DMFA N-Formyldimethylamine N,N-Dimethylmethanamide DMF (amide)	68-12-2	200-679-5	C ₃ H ₇ NO	The primary use of dimethylformamide is as a solvent with low evaporation rate. It is used in the production of acrylic fibers and plastics. It is also used as a solvent in peptide coupling for pharmaceuticals, in the development and production of pesticides, and in the manufacture of adhesives, synthetic leathers, fibers, films, and surface coatings.
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]				(C ₂ H ₄ O) _n C ₁₄ H ₂₂ O	It is a nonionic surfactant, with excellent emulsifying and high detergency properties. End applications include: detergents and Industrial cleaners, dispersants, Stabilizers, Sanitizers, defoaming agents, agrochemical emulsifiers, metal working, textile processing, paper de-inking, drilling products intermediate anionic surfactants synthesis, dust control, adhesive, plastic industry, lube oil, cosmetic and pharmaceuticals.
4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]				C ₁₅ H ₂₄ O	Nonylphenol is a subset of the alkylphenols. Alkylphenols are subjected to ethoxylation to give alkylphenol ethoxylates, which are widely used as industrial surfactants. They are used in applications as disparate as the processing of wool and metals, as emulsifiers for emulsion polymerization, as laboratory detergents, and as pesticides.
Furan		110-00-9	203-727-3	C ₄ H ₄ O	Furan is good solvent. Its usage includes preservatives, fungicides, herbicides, disinfectants, therapeutic agents. It is also used in phenolic resins. Its additional applications include textile wetting agents, fuels, paper pulping agent, antifreezes, and floatation agents.
Lead oxide sulfate	Lead oxide sulfate (Pb ₂ O(SO ₄)) Dilead oxide sulphate Lead sulfate (Pb ₂ O(SO ₄)) Lead oxide sulfate (Pb ₂ (SO ₄)O) Lead sulfate (Pb ₂ SO ₃)	12036-76-9	234-853-7	O ₅ Pb ₂ S	Lead oxide sulfate is used in plastics for wire and cables, exterior construction, water pipes, and mini blinds. It is also used in protection for pipes and profiles for cables, gas pipes, and mirror backings. It is also used in manufacturing of active paste for lead acid batteries.
Lead titanium trioxide	Lead titanium oxide (PbTiO ₃) C.I. Pigment Yellow 47 Lead titanate Lead titanate (PbO.TiO ₂) Lead titanate (PbTiO ₃) Pigment Yellow 47	12060-00-3	235-038-9	O ₃ PbTi	It is used as coloring matter in paints. Lead titanate is one of the end members of the lead zirconate titanate (Pb[Zr _x Ti _{1-x}]O ₃ 0≤x≤1, PZT) system, which is technologically one of the most important ferroelectric ceramics.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	Benzene, 1,1'-oxybis[2,3,4,5,6-pentabromo-]	1163-19-5	214-604-9	$C_{12}Br_{10}O$	DecaBDE is widely detected in the European environment, residing mainly in sediments and soils at concentrations up to several milligrams per kilogram (parts per million) on a dry weight basis. It is also present in many types of aquatic and terrestrial wildlife species (including tissues of sensitive life stages such as bird eggs) at numerous geographical locations; although tissue concentrations are often low (close to the limits of analytical detection, or below), it can attain concentrations up to a few hundred micrograms per kilogram (parts per billion) on a wet weight basis in some top predators.
	1,1'-Oxybis(pentabromobenzene)	10945-70-2			
	decabromodiphenyl ether	145538-74-5			
	decabromodiphenyl oxide	1201677-32-8			
	bis(pentabromophenyl) oxide				
	decabromo biphenyl oxide				
	decabromo phenoxybenzene				
	benzene 1,1'				
	oxybis-, decabromo derivative				
	DecaBDE				
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	DBDPE		201-861-7	$C_{10}H_{12}N_2O_5$	It is mainly used in herbicides, insecticides, and pesticides.
	DBBE				
	DBBO				
	DBDPO				
	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7			
	Phenol, 2-sec-butyl-4,6-dinitro-				
	2,4-Dinitro-6-(1-methylpropyl)phenol				
	2,4-Dinitro-6-sec-butylphenol				
	2-(1-Methylpropyl)-4,6-dinitrophenol				
	2-sec-Butyl-4,6-dinitrophenol				
2,2-Diethoxyethane	4,6-Dinitro-2-(1-methyl-n-propyl)phenol		211-076-1	$C_6H_{14}O_2$	The typical use is as solvents in manufacturing.
	4,6-Dinitro-2-(2-butyl)phenol				
	4,6-Dinitro-2-sec-butylphenol				
	4,6-Dinitro-o-sec-butylphenol				
	6-sec-Butyl-2,4-dinitrophenol				
	Aatox				
	Blaartox BNP 20				
	BNP 30				
	Butaphen				
	Butaphene				
	Chemox P.E.				
	DBNF				
	Desicoll				
	Dibutox				
	Dibutox 20CE				
	DN 289				
	DNBP				
	DNOSBP				
	DNSBP				
	Dow General				
	Dytop				
	Hivertox				
	Ladob				
	Laseb				
	Liro DNBP				
	NSC 202753				
	Premeige				
	Super Kabrol				
	WSX 8365	629-14-1			
	Ethane, 1,2- diethoxy-				
	ethylene glycol diethyl ether				
	EGDEE				
	Ethyl glyme				
	diethyl glycol				
	diethyl cellosolve				



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
N-methylacetamide	Acetamide, N-methyl-Monomethylacetamide Methylacetamide	79-16-3	201-182-6	C ₃ H ₇ NO	N-Methylacetamide is used as a chemical intermediate in the production of life science, agrochemicals, electronic materials and construction materials.
Tetralead trioxide sulphate	Lead oxide sulfate (Pb ₃ O ₃ (SO ₄))	12202-17-4	235-380-9	O ₇ Pb ₃ S	Due to good flow properties Tribasic Lead Sulphate is used for making PVC and Board products (Stabilizer of Plastic PVC Products) e.g. rubber, cables, pipes, artificial leather and other products are made using it.
Acetic acid, lead salt, basic	Lead(2+) hydroxide acetate (1:1:1)	51404-69-4	257-175-3	C ₂ H ₄ O ₃ Pb	Tribasic Lead Sulphate is used in cable sheathing due to good electrical properties; used in production of Pipes for conveyance of gases and liquids and injection moulding.
[Phthalato(2-)]dioxotrilead	Lead, [1,2-benzenedicarboxylato (2-)]dioxotri-1,2-Benzenedicarboxylic acid, lead complex	69011-06-9	273-688-5	C ₈ H ₄ O ₆ Pb ₃	Acetic acid, lead salt, basic is used as a chemical intermediate in the manufacture of chemicals and chemical products.
Tetraethyllead	Plumbane, tetraethyl-Tetraethylplumbane	78-00-2	201-075-4	C ₈ H ₂₀ Pb	[Phthalato(2-)]dioxotrilead is used in plastics for wire and cables, exterior construction, water pipes, and mini blinds. It is also used in protection for pipes and profiles for cables, and gas pipes.
N-pentyl-isopentylphthalate	1,2-benzenedicarboxylic acid, 1-(3-methylbutyl) 2-pentyl ester 1,2-Benzenedicarboxylic acid, 3-methylbutyl pentyl ester	776297-69-9		C ₁₈ H ₂₆ O ₄	Tetraethyllead (common name tetraethyl lead), abbreviated TEL, is an additive in performance gasoline fuels and some aviation fuels. Phthalates in general are used in a large variety of products, from enteric coatings of pharmaceutical pills and nutritional supplements to viscosity control agents, gelling agents, film formers, stabilizers, dispersants, lubricants, binders, emulsifying agents, and suspending agents. End-applications include adhesives and glues, agricultural adjuvants, building materials, personal-care products, medical devices, detergents and surfactants, packaging, children's toys, modeling clay, waxes, paints, printing inks and coatings.
Pentalead tetraoxide sulphate	Lead oxide sulfate (Pb ₅ O ₄ (SO ₄)) Lead oxide sulfate (4PbO.PbSO ₄)	12065-90-6	235-067-7	O ₈ Pb ₅ S	Phthalates are also frequently used in soft plastic fishing lures, caulk, paint and pigments. Phthalates are used in a variety of household applications such as shower curtains, vinyl upholstery, adhesives, floor tiles, food containers and wrappers, and cleaning materials. Personal-care items containing phthalates include perfume, eye shadow, moisturizer, nail polish, liquid soap, and hair spray. They are also found in modern electronics and medical applications such as catheters and blood transfusion devices.
Heptacosafuorotetradecanoic acid	Tetrabasic lead sulfate Tetradecanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,13,13,14,14,14-heptacosafuoro-C14-PFCA	376-06-7	206-803-4	C ₁₄ HF ₂₇ O ₂	It is used in plastics for exterior construction; plastics use for water pipes; plastics for mini-blinds; protection pipes and profiles for cables; gas pipes; battery plates; mirror backing.
Tricosafuorododecanoic acid	Perfluoromyristic acid Perfluorotetradecanecarboxylic acid Perfluorotetradecanoic acid	307-55-1	206-203-2	C ₁₂ HF ₂₃ O ₂	Perfluoroalkyls are stable unique chemicals that they repel oil, grease, and water. They have been used in surface protection products such as carpet and clothing treatments and coatings for paper and cardboard packaging. Perfluoroalkyls have been used in fire-fighting foams.
1-bromopropane (n-propyl bromide)	Dodecanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-tricosafuoro-Dodecanoic acid, tricosafuoro-C12-PFCA Perfluorododecanoic acid Perfluorolauric acid Propane, 1-bromo-1-Propyl bromide Propyl bromide n-Propyl bromide	106-94-5	203-445-0	C ₃ H ₇ Br	Perfluoroalkyls are stable unique chemicals that they repel oil, grease, and water. They have been used in surface protection products such as carpet and clothing treatments and coatings for paper and cardboard packaging. Perfluoroalkyls have been used in fire-fighting foams.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Dioxobis(stearato)trilead	Lead, bis(octadecanoato)dioxotri-octadecanoic acid, lead complex	12578-12-0	235-702-8	$C_{36}H_{70}O_6Pb_3$	Dioxobis(stearato)trilead is used as a stabilizer in plastics for wire and cables, exterior construction, water pipes, and mini blinds. It is also used in protection for pipes and profiles for cables, and gas pipes.
Pentacosafuorotridecanoic acid	Tridecanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,13,13,13-pentacosafuoro-C13-PFCA	72629-94-8	276-745-2	$C_{13}HF_{25}O_2$	Perfluoroalkyls are stable unique chemicals that they repel oil, grease, and water. They have been used in surface protection products such as carpet and clothing treatments and coatings for paper and cardboard packaging. Perfluoroalkyls have been used in fire-fighting foams.
Methoxyacetic acid	Tridecanoic acid, pentacosafuoro-Perfluorotridecanoic acid Acetic acid, 2-methoxy-2-Methoxyacetic acid	625-45-6	210-894-6	$C_3H_6O_3$	Methoxyacetic acid is the primary active metabolite of the industrial chemical ethylene glycol monomethyl ether, a component of paints, inks, varnishes and anti-icing additive in jet fuels.
Methyloxirane (Propylene oxide)	Oxirane, 2-methyl-2-Methyloxirane Oxirane, methyl-Oxypropylene Propane, 1,2-epoxy-Propylene oxide (±)-1,2-Epoxypropane (±)-2-Methyloxirane (±)-Epoxypropane (±)-Methyloxirane (±)-Propylene oxide 1,2-Epoxypropane 1,2-Propylene oxide 2,3-Epoxypropane 2-Methyloxirane DL-1,2-Epoxypropane Epichlorohydrin Epoxypropane Methyloxacyclopropane Methyloxirane Propene oxide Propylene oxide Propylene epoxide dl-Propylene oxide	75-56-9	200-879-2	C_3H_6O	The United States Food and Drug Administration has approved the use of propylene oxide to pasteurize raw almonds beginning on September 1, 2007 in response to two incidents of contamination by <i>Salmonella</i> in commercial orchards, one incident occurring in Canada, and one incident in the United States. Pistachio nuts can also be subjected to propylene oxide to control <i>Salmonella</i> . It is a method approved by the FDA. Propylene oxide is commonly used in the preparation of biological samples for electron microscopy, to remove residual ethanol previously used for dehydration.
Trilead dioxide phosphonate	Lead oxide phosphonate ($Pb_3O_2(HPO_3)_3$)	12141-20-7	235-252-2	HO_5PPb_3	It is used as stabilizer in plastics, in particular PVC for wire and cables, exterior construction, water pipes, and mini blinds. It is also used in protection for pipes and profiles for cables, and gas pipes.
o-aminoazotoluene	Dibasic lead phosphite 4-o-tolylazo-o-toluidine Benzenamine, 2-methyl-4-[(2-methylphenyl)diazonyl]- 2-Methyl-4-[(2-methylphenyl)diazonyl]aniline Benzenamine, 2-methyl-4-[(2-methylphenyl)azo]- C.I. Solvent Yellow 3 o-Toluidine, 4-o-tolylazo- 2,3'-Dimethyl-4'-aminoazobenzene 2-Aminoazotoluene 2-Methyl-4-[(2-methylphenyl)diazonyl]amine 2-Methyl-4-[(o-tolyl)azo]aniline 2',3-Dimethyl-4-aminoazobenzene 4-(o-Tolylazo)-o-toluidine 4-Amino-2',3-dimethylazobenzene	97-56-3	202-591-2	$C_{14}H_{15}N_3$	<i>O-Aminoazotoluene</i> is used to color oils, fats, and waxes. It is also used as a chemical intermediate for the production of the dyes C.I. solvent red 24 and C.I. acid red 115.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	1,3-Benzenediamine, 4-methyl-	95-80-7	202-453-1	$C_7H_{10}N_2$	Toluene-2,4-diamine is used primarily in the production of toluene diisocyanate, which is used in the production of polyurethane. It is used as an intermediate in the synthesis of dyes and heterocyclic compounds. Toluene-2,4-diamine is also used to prepare direct oxidation black, a dye for hair and furs, and to prepare dyes for leather. Other uses of toluene-2,4-diamine include enhancement of thermal stability in polyamides, fatigue resistance and dyeability in fibers, and the preparation of impact-resistant resins, polyimides with superior wire-coating properties, benzimidazolethiols (antioxidants), hydraulic fluids, urethane foams, fungicide stabilizers, and sensitizers for explosives.
	4-Methylbenzene-1,3-diamine				
	Toluene-2,4-diamine				
	1,3-Diamino-4-methylbenzene				
	2,4-Diamino-1-methylbenzene				
	2,4-Diaminotoluene				
	2,4-Tolylenediamine				
	3-Amino-4-methylaniline				
	4-Methyl-1,3-benzenediamine				
	4-Methyl-1,3-benzenediamine				
	4-Methyl-1,3-phenylenediamine				
	4-Methyl-m-phenylenediamine				
	C.I. Oxidation Base 35				
	TDA				
	TDA (diamine)				
	m-Tolenediamine				
	m-Tolylenediamine				
Biphenyl-4-ylamine	[1,1'-Biphenyl]-4-amine	92-67-1	202-177-1	$C_{12}H_{11}N$	It is used to prevent the growth of moulds. It is directly used in the preservation of citrus fruits as a fungistat in transportation containers. It is a raw material for polychlorinated diphenyls. is used as an intermediate for the production of a wide range of organic compounds (e.g. emulsifiers, optical brighteners, crop protection products, plastics), as a heat transfer medium alone or with diphenyl ether in heating fluids, as a dyestuff carrier for textiles and copying paper and as a solvent in pharmaceutical production. Aminodiphenyls are used as rubber antioxidants and intermediates for the synthesis of organic compounds (azo dyes and pharmaceuticals).
	Biphenyl-4-amine				
	4-Biphenylamine				
	(1,1'-Biphenyl-4-yl)amine				
	4-Amino-1,1'-biphenyl				
	4-Aminobiphenyl				
	4-Aminodiphenyl				
	4-Phenylaniline				
	4-Phenylbenzenamine				
	Xenylamine				
	p-Aminobiphenyl				
	p-Aminodiphenyl				
	p-Biphenylamine				
	p-Phenylaniline				
	p-Xenylamine				
	C16-18-(even numbered)-fatty acids, lead salts	91031-62-8	292-966-7	$Pb_{2+}[H_3C(CH_2)_{14}-16C(O)O]_2$	It is used in the manufacture of polymer preparations and compounds and in the production of stabilizers, especially PVC. It is used as pigment for primer paints for iron objects and may be used in the manufacture of glass, especially lead glass. It is often used in paint, radiation protective agents including fluorescent light, vacuum tube, and cathode-ray tube, etc., optical glass, general glass, ceramic, enamel, storage battery, pigment, rubber, medicine, synthetic resin, electronic material.
	Lead oxide (Pb_3O_4)	1314-41-6	215-235-6	O_4Pb_3	
Fatty acids, C16-18, lead salts					
Orange lead (lead tetroxide)					





TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
4,4'-oxydianiline and its salts	Benzenamine, 4,4'-oxybis-Aniline, 4,4'-oxydi-	101-80-4	202-977-0	$C_{12}H_{12}N_2O$	Its primary use is in the manufacture of polyimide and poly(ester-imide) resins. Other applications include the manufacture of heat-resistant wire enamels and coatings, as an intermediates in the manufacture of epoxy resins and adhesives, and in the production of aromatic polyether imides.
	1-Amino-4-(4-aminophenoxy)benzene				
	4,4'-Diaminobiphenyl ether				
	4,4'-Diaminobiphenyl oxide				
	4,4'-Diaminodiphenyl ether				
	4,4'-Diaminodiphenyl oxide				
	4,4'-Diaminophenyl ether				
	4,4'-Oxybis(aniline)				
	4,4'-Oxybis[benzenamine]				
	4,4'-Oxydianiline				
	4,4'-Oxydiphenylamine				
	4-(4-Aminophenoxy)phenylamine				
	4-Aminophenyl ether				
	Bis(4-aminophenyl) ether				
	Bis(p-aminophenyl) ether				
	Di(4-aminophenyl) ether				
	Oxybis(4-aminobenzene)				
	Oxydi-p-phenylenediamine				
	Oxydianiline				
	p,p'-Diaminodiphenyl ether				
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	p,p'-Oxybis(aniline)]	123-77-3	204-650-8	$C_2H_4N_4O_2$	It is widely used in high density PVC, PE, PP pipe, NBR and PVC insulation, automobile parts. It is especially valuable to leather foaming agent of foam and wallpaper foam, PE molding foam, PVC molding foam, extrusion and coating, and rubber and extrusion molding foam.
	p,p'-Oxydianiline				
	p-Aminophenyl ether				
	1,2-Diazenedicarboxamide				
	Azobiscarboxamide				
	Azodicarbonamide (ADCA, ADA)				
	Azodicarbonamide				
	Azodicarboxylic acid diamide				
	1,1'-Azobis(formamide)				
	1,1'-Azobiscarbamide				
Sulfurous acid, lead salt, dibasic	Diazenedicarboxamide	62229-08-7	263-467-1	$H_2O_5Pb_2S$	It is used in plastics for wire and cables, exterior construction, water pipes, mini-blinds. It may also be used in protection pipes and projects for cable and gas pipes.
	1,1'-Azobisformamide				
	Lead(2+) hydroxide sulfite (2:2:1)				
	Dibasic lead sulfite				
	Cyanamide, lead(2+) salt (1:1)				
	Lead(2+) cyanamide				
	Cadmium sulfide; C. P. Golden Yellow				
	55; Cadmium Golden 366; Cadmium				
	Lemon Yellow 527; Cadmium Primrose				
	819; Cadmium Yellow 000; Cadmium				
Lead cyanamidate	Yellow 10G conc; Cadmium Yellow 892;	20837-86-9	244-073-9	CH_2N_2Pb	It is used as a high performance pigment and semiconducting substance in photoelectronics components like solar panels.
	Cadmium Yellow Conc. Deep; Cadmium				
	Yellow Conc. Golden; Cadmium Yellow				
	Conc. Lemon; Cadmium Yellow Conc.				
	Primrose; Cadmium Yellow OZ dark;				
	Cadmium Yellow Primrose 47-4100;				
	Cadmium Yellow ST; Cadmium				
	monosulfide; Cadmium sulfide yellow;				
	Cadmium yellow; Cadmopur Golden				
	Yellow N; Cadmopur Yellow; Capsebon;				
Cadmium sulphide	Ferro Lemon Yellow; Ferro Orange	1306-23-6	215-147-8	CdS	
	Yellow; Ferro Yellow; GSK; PC 108;				
	Primrose 1466; Reckitt Yellow 12;				
	Sicotherm Yellow L 1001				



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Disodium 3,3'-[1,1'-biphenyl]-4,4'-diylbis[4-aminonaphthalene-1-sulphonate] (C.I. Direct Red 28)	1-Naphthalenesulfonic acid, 3,3'-[1,1'-biphenyl]-4,4'-diylbis(2,1-diazenediyl)bis[4-amino-, sodium salt (1:2); Disodium 4-amino-3-[(4-{(1-amino-4-sulfonat)naphthalen-2-yl}diazenyl)phenyl]phenyl]diazenylnaphthalene-1-sulfonate; Al3-63036 Atlantic Congo Red Atul Congo Red Azocard Red Congo Benzo Congo Red Brasilamina congo 4B C.I. 22120 C.I. Direct Red 28 C.I. Direct Red 28, disodium salt Cerven kongo Cerven prima 28 Congazone sodium Congo Red Congo Red 4B Congo Red 4BX Congo Red CR Congo Red H Congo Red ICI Congo Red L Congo Red M Congo Red N Congo Red R Congo Red W Congo Red WS Cotton Red 4BC Cotton Red 5B Cotton Red L Diacotton Congo Red Direct Red 28 Direct Red C Direct Red DC-CF Direct Red K Erie Congo 4B Haemomedical Haemonorm Hemorrhagyl Hispamin congo 4B Kayaku Congo Red Mitsui Congo Red NSC 56651 NSC 7232 Peeramine Congo Red Red K Sodium diphenyldiazobis(alphanaphthylaminesulfonate) Solucongo Sugal Congo Red Tertrdirect Red C Trisulfon Congo Red UNII-3U05FHG59S Vondacel Red CL	573-58-0	209-358-4	$C_{32}H_{24}N_6O_6S_2 \cdot 2Na$	It is used as pigment in textile and other dyes. Used as a pH indicator, as an addition to culture media and for biological staining as well as a gelling agent for poly (vinyl alcohol) in applications where coloured films or coatings can be tolerated.

TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Disodium 4-amino-3-[[4'-(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	2,7-Naphthalenedisulfonic acid, 4-amino-3-[[4'-(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(2-phenyldiazonyl)-, sodium salt (1:2); Ahco Direct Black GX; Airedale Black ED; Aizen Direct Deep Black EH; Aizen Direct Deep Black GH; Aizen Direct Deep Black RH; Amanil Black GL; Amanil Black WD; Apomine Black GX; Atlantic Black BD; Atlantic Black C; Atlantic Black E; Atlantic Black EA; Atlantic Black GAC; Atlantic Black GG; Atlantic Black GXCW; Atlantic Black GXOO; Atlantic Black SD; Atul Direct Black E; Azine Deep Black EW; Azocard Black EW; Azomine Black EWO; Belamine Black GX; Bencidal Black E; Benzanil Black E; Benzo Deep Black E; BenzoLeather Black E; Benzoform Black BCN-CF; Black 2EMBL; Black 4EMBL; Brasilamina Black GN; Brilliant Chrome Leather Black H; C.I. 30235; C.I. Direct Black 38, disodium salt; Calcomine; Black; Calcomine Black EXL; Carbide Black E; Chloramine Black C; Chloramine Black EC; Chloramine Black ERT; Chloramine Black EX; Chloramine Black EXR; Chloramine Black XO; Chloramine Carbon Black S; Chloramine Carbon Black SJ; Chloramine Carbon Black SN; Chlorazol Black E; Chlorazol Black EA; Chlorazol Black EN; Chlorazol Burl Black E; Chlorazol Leather Black ENP; Chlorazol Silk Black G; Chlorazol Black E; Chrome Leather Black E; Chrome Leather Black EC; Chrome Leather Black EM; Chrome Leather Black G; Chrome Leather Brilliant Black ER; Coir Deep Black; Columbia Black EP;	1937-37-7	217-710-3	$C_{34}H_{25}N_9Na_2O_7S_2$	Dye cellulose, wool, silk, bast, and hog's hair; print cellulose, wool and silk; dye leather, plastics, vegetable-ivory buttons and wood flour used as a resin filler; stain wool, silk, acetate, nylon, wood and biological materials, and produce aqueous inks. It has reportedly been used in hair dyes.

TABLE 1 *Continued*

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
	Coranil Direct				
	Black F; Diacotton Deep Black;				
	Diacotton Deep Black RX; Diamine				
	Deep Black EC; Diamine				
	DirectBlack E; Diaphtamine Black V;				
	Diazine				
	Black E; Diazine Direct Black E; Diazine				
	Direct				
	Black G; Diazol Black 2V; Diphenyl				
	Deep Black G;				
	Direct Black A; Direct Black BRN; Direct				
	Black				
	CX; Direct Black CXR; Direct Black E;				
	Direct				
	Black EW; Direct Black EX; Direct Black				
	FR;				
	Direct Black GAC; Direct Black GW;				
	Direct Black				
	GX; Direct Black GXR; Direct Black JET;				
	Direct				
	Black Meta; Direct Black methyl; Direct				
	Black N;				
	Direct Black RX; Direct Black SD; Direct				
	Black				
	WS; Direct Black Z; Direct Black ZSh;				
	Direct Deep				
	Black E; Direct Deep Black E Extra;				
	Direct Deep				
	Black E-EX; Direct Deep Black EA-CF;				
	Direct				
	Deep Black EAC; Direct Deep Black				
	EW; Direct				
	Deep Black EX; Direct Deep Black WX;				
	Enianil				
	Black CN; Erie Black B; Erie Black BF;				
	Erie Black				
	GAC; Erie Black GXOO; Erie Black JET;				
	Erie				
	Black NUG; Erie Black RXOO; Erie				
	Brilliant Black				
	S; Erie Fibre Black VP; Fenamin Black				
	E; Fibre				
	Black VF; Fixanol Black E; Formaline				
	Black C;				
	Formic Black C; Formic Black CW;				
	Formic Black				
	EA; Formic Black MTG; Formic Black				
	TG;				
	Hispanin Black EF; Interchem Direct				
	Black Z;				
	Kayaku Direct Deep Black EX; Kayaku				
	Direct Deep				
	Black GX; Kayaku Direct Deep Black S;				
	Kayaku				
	Direct Leather Black EX; Kayaku Direct				
	Special				
	Black AAX; Lurazol Black BA; Meta				
	Black; Mitsui				
	Direct Black EX; Mitsui Direct Black GX;				



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
	Nippon Deep Black; Nippon Deep Black GX; Paper Black BA; Paper Black T; Paper Deep Black C; Paramine Black B; Paramine Black E; Peeramine Black E; Peeramine Black GXOO; Phenamine Black BCNOF; Phenamine Black CL; Phenamine Black E; Phenamine Black E 200; Pheno Black EP; Pheno Black SGN; Pontamine Black E; Pontamine Black; EBN; Sandopel Black EX; Seristan Black B; Telon Fast Black E; Tetradirect Black E; Tetradirect Black EFD; Tetrazo Deep Black G; Union Black EM; Vondacel Black N				
Dihexyl phthalate	1,2-Benzenedicarboxylic acid, dihexyl ester	84-75-3	201-559-5	$C_{20}H_{30}O_4$	It is used as plasticizer in plastics and coatings.
Imidazolidine-2-thione (2-imidazoline-2-thiol) Lead di(acetate)	2-imidazolidinethione; imidazolidine-2- thione; ethylene thiourea; ETU Acetic acid, lead(2+) salt (2:1); Lead(2+) diacetate; Acetic acid, lead(2++) salt; Acetic acid, lead(2+) salt; Lead acetate; Plomo(II) Acetato 3-hidrato; Lead(2+) diacetate; Lead(II) diethanoate-3-water Phenol, dimethyl-, 1,1',1''-phosphate; Reaction product of phosphorous oxytrichloric acid and xlenols containing tris (dimethylphenyl and/or ethylphenyl) phosphates Trixylenylphosphate Dimethylphenol phosphate (3:1) Phenol, dimethyl-, phosphate (3:1) Phosphoric acid, trixylyl ester Xylenol, phosphate (3:1) Tri-dimethyl phenyl phosphate Tris (dimethylphenol) phosphate Kronitex TXP (Trade name) Phosiflex TXP (Trade name)	96-45-7 301-04-2	202-506-9 206-104-4	$C_3H_6N_2S$ $C_4H_6O_4Pb$	It is widely used as vulcanization agent in neoprene and polyacrylate rubber articles. It is used as intermediate for other lead compounds or as chemicals.
Trixylyl phosphate	1,2-Benzenedicarboxylic acid, 1,2- dihexyl ester, branched and linear;	25155-23-1	246-677-8	$C_{24}H_{30}O_4P$	It is used as industrial chemicals such as flame retardant, additive in metal working fluid, hydraulic fluid, or other lubricants, or as plasticizer in polymers.
	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	271-093-5	$C_{20}H_{30}O_4$	It is used as plasticiser in PVC and in sealants, coatings and potentially printing inks.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Sodium perborate; perboric acid, sodium salt	Perboric acid (HBO(O ₂)), sodium salt, monohydrate; Perboric acid (H ₂ BO ₂ (O ₂)), monosodium salt,	15120-21-5	239-172-9	BHO ₃ Na	It is used in detergents, cleaning products, laundry bleaches, or tooth bleaching products.
	trihydrate; Perboric acid (HBO(O ₂)), sodium salt, hydrate (1:1.4); Perboric acid, sodium salt, tetrahydrate;	11138-47-9	234-390-0	BH ₃ O ₄ Na	
	Borate(2-), tetrahydroxybis[μ-(peroxy-κO1:κO2)]di-, sodium (1:2); molecular formula B ₂ H ₄ O ₈ .2Na; Borate(2-), sodium, hydrate (1:2.6); molecular formula B ₂ H ₄ O ₈ .6H ₂ O.2Na; PBS1;	10332-33-9		BHO ₃ .H ₂ O.Na	
	PBSM; Sodium perborate monohydrate; Sodium perborate tetrahydrate; PBS4;	13517-20-9		BH ₃ O ₄ .3H ₂ O.Na	
	PBST	10486-00-7		BHO ₃ .4H ₂ O.Na	
Sodium peroxometaborate	Perboric acid (HBO(O ₂)), sodium salt (1:1); Perboric acid (HBO(O ₂)), sodium salt (9Cl); Perboric acid (HBO ₃), sodium salt (8Cl); Sodium perborate (NaBO ₃) (6Cl.7Cl); Perborn; Sodium borate (NaBO ₃); Sodium perborate; Sodium peroxoborate	7632-04-4	231-556-4	BHO ₃ Na *	It is mainly used as bleaching agent in laundry detergents and machine dishwashing products.
		12040-72-1		* The molecular and structural information provided here is theoretical and the information in the literature indicates that the substance is not well-defined.	
		10332-33-9			
		13517-20-9			
		10486-00-7			
Cadmium chloride		37244-98-7			Cadmium chloride is used for the preparation of cadmium sulfide, used as "Cadmium Yellow", a brilliant-yellow stable inorganic pigment.
		37244-98-7			
		37244-98-7			
		37244-98-7			
		37244-98-7			
Cadmium sulphate	Cadmium dichloride; Cadmium dichloride; Cadmium(II) chloride;	10108-64-2	233-296-7	CdCl ₂	Cadmium sulfate is used widely for the electroplating of cadmium in electronic circuits. It is also a precursor to cadmium-based pigment such as cadmium sulfide. It is also used for electrolyte in a Weston standard cell as well as a pigment in fluorescent screens.
	Dichlorocadmium	7790-78-5			
	Cadmium sulfate hydrate	10124-36-4	233-331-6	Cd.H ₂ O ₄ S	
	Sulfuric acid, cadmium salt (1:1), hydrate (3:8)	31119-53-6			
	Cadmium(2+) sulfate hydrate cadmium(2+) trisulfate octahydrate	7790-84-3, Sulfuric acid, cadmium salt (1:1), hydrate (3:8) (CLP database). 15244-3-6, Sulphuric acid, cadmium salt (1:1), unspecified hydration rate			
Cadmium fluoride		7790-79-6	232-222-0	CdF ₂	Cadmium fluoride is a cadmium source used in oxygen sensitive applications, such as production of metallic alloys. Extremely low concentration (ppm) level are used in specific medical treatments.
	Cadmium difluoride				
	Cadmium(2+) fluoride				
	Cadmium(II) fluoride				

TABLE 1 *Continued*

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)- 2-(2H-benzotriazol-2-yl)-4,6-bis(2-methylbutan-2-yl)phenol UV-328 Phenol, 2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentyl- (7Cl.8Cl) 2-(2-Hydroxy-3,5-di-tert-amylphenyl)-2H-benzotriazole 2-(2-Hydroxy-3,5-di-tert-amylphenyl)benzotriazole 2-(2-Hydroxy-3,5-di-tert-pentylphenyl)benzotriazole 2-(2H-Benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)phenol 2-(2H-Benzotriazol-2-yl)-4,6-di-tert-pentylphenol 2-(2-Hydroxy-3,5-di-tert-amylphenyl)benzotriazole 2-(3,5-Di-tert-amyl-2-hydroxyphenyl)-2Hbenzotriazole 2-(3,5-Di-tert-amyl-2-hydroxyphenyl)benzotriazole 2-(3,5-Di-tert-pentyl-2-hydroxyphenyl)-2Hbenzotriazole 2-(3,5-Di-tert-pentyl-2-hydroxyphenyl)benzotriazole 2-(3,5-Di-tert-amyl-2'-hydroxyphenyl)benzotriazole Chisorb 328 Cyasorb UV 2337 Eversorb 74 Kemisorb 74 Lowlite 28 Seesorb 704 Sumisorb 350 Tin 328 Tinuvin 328 UV 2337 UV-328 UV 74 Viosorb 591	25973-55-1	247-384-8	C ₂₂ H ₂₉ N ₃ O	It is a highly effective light stabilizer for a variety of plastics and other organic substrates.

TABLE 1 *Continued*

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethylthio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	DOTE DOT(EHMA)2 Di-octyltin bis(2-ethylhexyl mercaptoacetate) Diocetyl tin bis(2-ethylhexyl) mercaptoacetate Advastab 17MOL 17MOK Advastab 17 MOK Acetic acid, 2,2'((dioctylstannylene)-bis(thio))bis-, di-2-ethylhexyl ester Bis(2-ethylhexyl thioglycolato)diocetyl tin Bis(2-ethylhexyl ((dioctylstannylene)dithio)diacetate, Bis(carboxymethylthio)dioctylstannylene, di(2-ethylhexyl) ester Di-n-octyltin bis(2-ethylhexyl mercaptoacetate) Di-n-octyltin-dithioglycolic acid 2-ethylhexyl ester Diocetyl tin bis(2-ethylhexyl thioglycolate) Diocetyl tin bis(2-ethylhexyl mercaptoacetate) MOTE MO(EHMA)3 Mono-octyltin tris(2-ethylhexyl mercaptoacetate) Octyltin tris(2-ethylhexyl mercaptoacetate) Acetic acid, ((octylstannylidene)trithio)tri-tris(2-ethylhexyl) ester Acetic acid, ((octylstannylidene)trithio)tris-(2-ethylhexyl) ester Mono-n-octyl-tin-tris-(2-ethylhexyl mercaptoacetate) Octyltin tris(2-ethylhexyl mercaptoacetate) Octyltris(2-ethylhexyl)oxycarbonylmethylthio)stannane Tin, octyl-tris(isooctylthio glycollate) Acetic acid, ((octylstannylidene)trithio)tris-(2-ethylhexyl) ester			C ₃₈ H ₇₂ O ₄ S ₂ Sn (DOTE) C ₃₈ H ₇₄ O ₆ S ₃ Sn (MOTE)	It is used as a stabilizer in polymers and medicine pills.

TABLE 1 *Continued*

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	8-Oxa-3,5-dithia-4-stannatetradecanoic acid, 10-ethyl-4,4-dioctyl-7-oxo-, 2-ethylhexyl ester DOTE DOT(EHMA)2 Diocetyl bis(2-ethylhexyl mercaptoacetate) Diocetyl bis(2-ethylhexyl mercaptoacetate) Advastab 17MOL 17MOK Advastab 17 MOK Acetic acid, 2,2'((diocetylstannylene)-bis(thio))bis-, di-2-ethylhexyl ester Bis(2-ethylhexyl thioglycolato)diocetyl Bis(2-ethylhexyl ((diocetylstannylene)dithio)diacetate Bis(carboxymethylthio)diocetylstannylene, di(2-ethylhexyl) ester Di-n-octyltin bis(2-ethylhexyl mercaptoacetate) Di-n-octyltin-diethioglycolic acid 2-ethylhexyl ester Diocetyl bis(2-ethylhexyl thioglycolate) Diocetyl bis(2-ethylhexylmercaptoacetate) Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-2-(2H-benzotriazol-2-yl)-4,6-di-tert-butylphenol UV 320 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2-Benzotriazolyl)-4,6-di-tert-butylphenol 2-(2-Hydroxy-3,5-di-tert-butylphenyl)-2H-benzotriazole 2-(2-Hydroxy-3,5-di-tert-butylphenyl)benzotriazole 2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole 1,2-oxathiolane 2,2-dioxide; 1,3-Propane sultone; 1,3-Propanesultone; 1,3-Propanesultone; Propane Sultone; 1,2-oxathiolane-2,2-dione	15571-58-1	239-622-4	C ₃₆ H ₇₂ O ₄ S ₂ Sn	It is used as a stabilizer in polymers and medicine pills.
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole 2-(2-Benzotriazolyl)-4,6-di-tert-butylphenol 2-(2-Hydroxy-3,5-di-tert-butylphenyl)-2H-benzotriazole 2-(2-Hydroxy-3,5-di-tert-butylphenyl)benzotriazole 2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)benzotriazole 1,2-oxathiolane 2,2-dioxide; 1,3-Propane sultone; 1,3-Propanesultone; 1,3-Propanesultone; Propane Sultone; 1,2-oxathiolane-2,2-dione	3846-71-7	223-346-6	C ₂₀ H ₂₈ N ₃ O	It is a highly effective light stabilizer for a variety of plastics and other organic substrates.
3-propanesultone	1,2-oxathiolane 2,2-dioxide; 1,3-Propane sultone; 1,3-Propanesultone; 1,3-Propanesultone; Propane Sultone; 1,2-oxathiolane-2,2-dione	1120-71-4	214-317-9	C ₃ H ₆ O ₃ S	This substance is used in the scientific research and development. It is also used for the manufacture of: chemicals and electrical, electronic and optical equipment. This substance can be found in complex articles, with no release intended, such as electrical batteries and accumulators.

TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	phenol, 2-(5-chloro-2Hbenzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-; phenol, 2,4-di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)-; 2,4-di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)phenol; 2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol; 2-(2-hydroxy-3,5-di-tert-butylphenyl)-5-chloro-2H-benzotriazole; 2-(2-hydroxy-3,5-di-tert-butylphenyl)-5-chlorobenzotriazole; 2-(2'-hydroxy-3',5'-di-tertbutylphenyl)-5-chlorobenzotriazole; 2-(3,5-di-tert-butyl-2-hydroxyphenyl)-5-chloro-2H-benzotriazole; 2-(3,5-di-tert-butyl-2-hydroxyphenyl)-5-chloro-2H-benzotriazole; 2-(3',5'-di-tert-butyl-2-hydroxyphenyl)-5-chlorobenzotriazole; 5-chloro-2-(2-hydroxy-3,5-ditert-butylphenyl)-2Hbenzotriazole; 5-chloro-2-(2-hydroxy-3,5-di-tertbutylphenyl)benzotriazole; 5-chloro-2-(3,5-di-tert-butyl-2-hydroxyphenyl)-2Hbenzotriazole; 5-chloro-2-(3,5-di-tert-butyl-2-hydroxyphenyl)-2Hbenzotriazole; 5-chloro-2-(3',5'-di-tertbutyl-2'-hydroxyphenyl)benzotriazole; ADK Stab LA 34; Antioxidant 327; Cyasorb UV 5357; Eversorb 75; Hisorb 327; Kemisorb 72; LA 34; Lowlite 27; Mark LA 34; Seesorb 702; TNV 327; Tinuvin 327; UV 2; UV 2 (UV stabilizer); UV 327; UV-Chek AM 607; Viosorb 580; 2-(5-chloro-2Hbenzotriazol-2-yl)-4,6-bis(2-methyl-2-propenyl)phenol	3864-99-1	223-383-8	C ₂₀ H ₂₄ ClN ₃ O	It is used as UV filters.
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(secbutyl)phenol (UV-350)	phenol, 2-(2H-benzotriazol-2-yl)-4-(1,1-dimethylethyl)-6-(1-methylpropyl)-; 2-(2Hbenzotriazol-2-yl)-6-secbutyl-4-tert-butylphenol; UV 350; Reaction mass of 2-(2Hbenzotriazol-2-yl)-6-((2R)-butan-2-yl)-4-tertbutylphenol and 2-(2H-benzotriazol-2-yl)-6-((2S)-butan-2-yl)-4-tertbutylphenol; 2-(2-hydroxy-3-sec-tertbutylphenyl) benzotriazole; 2-(2-hydroxy-3-sec-butyl-5-tert-butylphenyl)-2Hbenzotriazole; 2-(2Hbenzotriazol-2-yl)-4-(tertbutyl)-6-(sec-butyl)phenol; 2-(3-sec-butyl-5-tert-butyl-2-hydroxyphenyl)benzotriazole; 2-(3'-sec-butyl-5'-tert-butyl-2'-hydroxyphenyl)benzotriazole; 4-tert-butyl-6-sec-butyl-2-(2H-benzotriazol-2-yl)phenol; Chisorb 350; Eversorb 79 Benzene, nitro-; Nitrobenzol, mirbane oil, essence of mirbane, p-Nitrobenzene, Mononitrobenzene	36437-37-3	253-037-1	C ₂₀ H ₂₅ N ₃ O	It is used as UV filters.
2-nitrobenzene		98-95-3	202-716-0	C ₆ H ₅ NO ₂	It is used in chemical processes or as laboratory chemical for research.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Perfluorononan-1-oic acid [1] and its sodium [2] and ammonium salts [3]	Nonanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9, 9,9-heptafluoro- [1]; Nonanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9, 9,9-heptafluoro-, sodium salt (1:1) [2]; Nonanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9, 9,9-heptafluoro-, ammonium salt (1:1) [3]; heptafluorononanoic acid [1]; sodium heptafluorononanoate [2]; ammonium heptafluorononanoate [3]; C9-PFA; heptafluorononanoic acid; Nonanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9, 9,9-heptafluoro-; Nonanoic acid, heptafluoro-; perfluoro- nonanoic acid; perfluoro-nonanoic acid, ammonium salt; perfluoro-n-nonanoic acid, sodium salt; Perfluorononanoic acid; Perfluoronanoic acid (PFNA); PFNA; PFNonanoic acid; Serum Perfluoronanoic Acid	375-95-1 [1] 21049-39-8 [2] 4149-60-4 [3]	206-801-3 [1] Not applicable [2] Not applicable [3]	C ₉ HF ₁₇ O [1]	Per- and polyfluoroalkyl substances (PFASs), are a large group of chemicals used as ingredients or intermediates of surfactants and surface protectors for assorted industrial and consumer applications. It is a type of highly persistent material.
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters	Di-C6-10 alkyl phthalate; Di(C6- C10)alkyl phthalate; Phthalic acid, di(C6-C10)-alkyl esters; Linear610Phthalate; Esterification of phthalic anhydride and C6-10-alcohol; Di-C6-10 (even numbered) alkyl Phthalate; Esterification of phthalic anhydride and hexanol, octanol and decanol [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	68515-51-5 68648-93-1	271-094-0 272-013-1	undefined	The substance can be used as plasticizer or additive.
5-sec-butyl-2-(2,4-dimethylcyclohex -3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex -3-en-1-yl)-5-methyl-1,3-dioxane [2]		Undefined Nonexhaustive list of substances include 117933-89-8 343934-04-3 343934-05-4 676367-02-5 676367-03-6 676367-04-7 676367-05-8 676367-06-9 676367-07-0 676367-08-1 676367-09-2 186309-28-4 50-32-8	Undefined Nonexhaustive list of substances include 413-720-9	C ₁₇ H ₃₀ O ₂	It is used as an ingredient in fragrance.
Benzo[def]chrysene Benzo[a]pyrene	Benzo-alpha-pyrene 3,4-Benzopyrene 6,7-Benzopyrene 4,5-Benzochrysene BaP 3,4-BP BP RCRA Waste Number U022		200-028-5	C ₂₀ H ₁₂	It is a research chemical, used extensively as a positive control in a variety of laboratory mutagenicity & carcinogenicity short-term tests.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
4,4,4'-isopropylidenediphenol	Bisphenol A BPA phenol, 4,4'-(1-methylethylidene)bis- 4,4'-propane-2,2-diylidiphenol 2,2-bis(4-hydroxyphenyl)propane	80-05-7	201-245-8	C ₁₅ H ₁₆ O ₂	It is an industrial chemical often used in making certain plastics and epoxy resins. BPA-based plastic is clear and tough, and is made into a variety of common consumer goods, such as water bottles, sports equipment, CDs, and DVDs. Epoxy resins containing BPA are used to line water pipes, as coatings on the inside of many food and beverage cans and in making thermal paper such as that used in sales receipts. It is also a preferred color developer in carbonless copy paper and thermal point of sale receipt paper.
4-heptylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	4-HPbl	6465-71-0 6465-74-3 6863-24-7 1987-50-4 72624-02-3 1824346-00-0 1139800-98-8 911371-07-8 911371-06-7 911370-98-4 861011-60-1 861010-65-3 857629-71-1 854904-93-1 854904-92-0 102570-52-5 100532-36-3 72861-06-4 71945-81-8 37872-24-5 33104-11-9 30784-32-8 30784-31-7 30784-27-1 335-76-2 [1] 3830-45-3 [2] 3108-42-7 [3]	276-743-1 217-862-0	C ₁₃ H ₂₀ O	It is used in lubricant as additives. It is also used as monomers to generate polymers. These polymers may be found in the lubricants and greases in vehicles or machinery.
Nonadecafluorodecanoic acid (PFDA) [1] and its sodium [2] and ammonium salts [3]: Nonadecafluorodecanoic acid [1] Decanoic acid, nonadecafluoro- Ammonium nonadecafluorodecanoate [3]	PFDA [1] PFD-A [2] PFD-S [3] 2D,e2c,a3n,3o,i4c,a4c,5id,,5,6,6,7,7,8,8,9,10,10,10- nonadecafluoro- 2D,e2c,a3n,3o,i4c,a4c,5id,,5,6,6,7,7,8,8,9,10,10,10- nonadecafluoro-, sodium salt (1:1) 2D,e2c,a3n,3o,i4c,a4c,5id,,5,6,6,7,7,8,8,9,10,10,10- nonadecafluoro-, ammonium salt (1:1) Nonadecafluorodecanoic acid Sodium nonadecafluorodecanoate Ammonium nonadecafluorodecanoate PFDA C10-PFCA Perfluorodecanoic acid	206-400-3 [1] - 221-470-5 [3]	C ₁₀ HF ₁₉ O ₂ [1] C ₁₀ F ₁₉ NaO ₂ [2] C ₁₀ H ₄ F ₁₉ NO ₂ [3]	They have been used as plasticizer, lubricant, surfactant, wetting agent and corrosion inhibitor. They have also been detected in various water and stain resistant textiles.	



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
p-(1,1-dimethylpropyl)phenol	Phenol, 4-(1,1-dimethylpropyl)- 4-(1,1-dimethylpropyl)phenol Phenol, p-(1,1-dimethylpropyl)-(5Cl) Phenol, p-tert-pentyl-(6C1,8C1) 4-(1,1-Dimethylpropyl)phenol 4-t-Amylphenol 4-t-pentylphenol 4-tert-amylphenol 4-tert-pentylphenol Amilfenol BirexSE NSC 403672 NSC 4965 p-(1,1-Dimethylpropyl)phenol p-(α,α -Dimethylpropyl)phenol p-tert-Amylphenol p-tert-Pentylphenol 4-t-PP	80-46-6	201-280-9	$C_{11}H_{16}O$	It is used in the production of phenolic resins and lacquers. It is also used in the production of ethoxylated resins, some of which are used in oilfield applications. Other use categories are cleaning/washing agents, surface active agents and paints. Also use in consumer products are given: adhesive, sealants, coatings and paints, thinners and paint removers.
Perfluorohexane-1-sulphonic acid (PFHxS) and its salts	Perfluorohexanesulfonic acid; 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluorohexane-1-sulfonic acid; Tridecafluorohexane-1-sulfonic acid; 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-; 1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-1-hexanesulfonic acid; Tridecafluorohexanesulfonic acid	355-46-4	206-587-1	$C_6HF_{13}O_3S$	PFHxS belong to a chemical group, Perfluorochemicals (PFCs). Other well-known members of PFCs include PFOS and PFOA, both of which have already been listed under EU REACH regulation. PFHxS, PFOS and PFOA share similar chemical structure and uses, such as surface treatment agents for textiles, paper, and furniture etc. for its excellent waterproofing and oilresistance performance)

TABLE 1 *Continued*

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
1,6,7,8,9,14,15,16,17,17,18, 18-Dodecachloropentacyclo[12,2,1,16,9,02,13,05,10]octade ca-7,15-diene ("Dechlorane Plus") covering any of its individual anti- and synisomers or any combination thereof	1,6,7,8,9,14,15,16,17,17,18,1 pentacyclo[12,2,1,16,9,02,13,05,10] octadeca-7,15-diene 1,4:7,10- Dimethanodibenzof[a,e]cyclooctene, 1,2,3,4,7,8,9,10,13,13,14,14- dodecachloro 1,4,4a,5,6,6a,7,10,10a,11,12, 12a- dodecachydro- Bis(hexachlorocyclopentadieno)cyclooctane 1,2,3,4,7,8,9,10,13,13,14,14- Dodecachloro 1,4,4a,5,6,6a,7,10,10a,11,12, 12a- dodechdro-1,4:7,10- dimethanodibenzof[a,e]cyclooctene Dodecachlorododecachydrodi methanodibenzocyclooctene Dechlorane Plus 25 (Dech Plus) Dechlorane Plus 35 (Dech Plus-2) DP-515 Dechlorane 605 DP DDC-CO 1,4:7,10- Dimethanodibenzof[a,e]cyclooctene, 1,2,3,4,7,8,9,10,13,13,14,14- dodecachloro-1,4,4a,5,6, 6a,7,10,10a,11,12,12a dodecachydro-, (1 R,4 S,4a S,6a S,7 S,10R,10aR, 12aR)-rel- (1S,2S,5S,6S,9R,10R,13R,14 R)- 1,6,7,8,9,14,15,16,17,17,18,1 8- Dodecachloropentacyclo[12, 2,1,16,9,02,13,05,10]octadeca 7,15-diene anti-DP anti-Dechlorane plus antiDodecachloropentacyclocta decadiene 1,4:7,10- Dimethanodibenzof[a,e]cyclo octene, 1,2,3,4,7,8,9,10,13,13,14,14- dodecachloro 1,4,4a,5,6,6a,7,10,10a,11,12, 12a- dodecachydro-, (1R,4S,4a S,6aR,7R,10S,10aS, 12aR)- rel- (1S,2S,5R,6R,9R,10S,13R,14 R)- 1,6,7,8,9,14,15,16,17,17,18,1 8- Dodecachloropentacyclo[12, 2,1,16,9,02,13,05,10]octadeca 7,15-diene syn-DP syn-Dechlorane plus syn-Dodecachloropentacyclocta decadiene	Including 13560-89-9 135821-74-8 135821-03-3	Including 236-948-9	C ₁₈ H ₁₂ Cl ₁₂	Dechlorane Plus (a registered trademark of Oxychem) is a synthetic polychlorinated flame retardant. It can be used in electrical and electronic products, such as hard plastic connectors, commercial wire and cables. It is also used in buildings and construction materials, including plastic roofing. In addition, it may also be used for plastic and rubber products in automobiles and furniture.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Benz[a]anthracene	BaA Benz[a]anthracene tetraphene 1,2-Benz[a]anthracene 1,2-Benzanthrene 1,2-Benzanthrene Benzanthrene Benzoanthracene 1,2-Benzoanthracene Benzo[b]phenanthrene 2,3-Benzophenanthrene	56-55-3 1718-53-2	200-280-6	C ₁₈ H ₁₂	Benz[a]anthracene is present naturally and can be found in coal tar.
Cadmium carbonate		513-78-0	208-168-9	CdCO ₃	Cadmium carbonate is used as lawn and turf fungicide in combination with organic fungicide for food, agriculture, and pharmaceutical applications. Cadmium hydroxide can be found generated in industrial nickel-cadmium and silver-cadmium storage battery anodes, in nickel-cadmium and silver-cadmium storage batteries in its discharge. It may also be used in cadmium plating and in making cadmium salts. Cadmium nitrate is used in the production of cadmium hydroxide for use in alkaline batteries, to color glass and porcelain, in photography and in nuclear reactors.
Cadmium hydroxide	Cadmium dihydroxide	21041-95-2	244-168-5	CdH ₂ O ₂	
Cadmium nitrate	Cadmium dinitrate Cadmium(2+) ion dinitrate	10022-68-1 10325-94-7	233-710-6	Cd(NO ₃) ₂	
Chrysene	Benzo[a]phenanthrene 1,2-Benzophenanthrene 1,2-Benzophenanthrene Chrysen (CHP) Chrysene	218-01-9, 1719-03-5	205-923-4	C ₁₈ H ₁₂	Chrysene is present naturally and can be found in coal tar.
Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4- heptylphenol, branched and linear (RP-HP) with ≥0.1% w/w 4- heptylphenol, branched and linear (4-HPbl)				undefined	4-heptylphenol, branched and linear (4-HPbl) is a SVHC substance. Hence RP-HP, with >0.1% w/w 4-HPbl, is also identified as a SVHC substance, which is used in lubricant as additives.
Benzene-1,2,4-tricarboxylic acid 1,2 anhydride trimellitic anhydride; TMA	5-Isobenzofuran-1,3-dioxo-; 1,3-dioxo-1,3-dihydro-2- benzofuran-5-carboxylic acid; 1,2,4-Benzenetricarboxylic acid, cyclic 1,2-anhydride; 1,2,4-Benzenetricarboxylic anhydride; 1,3-dioxo-2-benzofuran-5- carboxylic acid; 1,3-dioxo-5-isobenzofuran-2-carboxylic acid; Anhydride trimellitique; Benzen-1,2,4-trikarboxy-1,2- anhydrid; Benzene-1,2,4-tricarboxylic acid 1,2-anhydride; Trimellitic anhydride	552-30-7	209-008-0	C ₉ H ₄ O ₅	Trimellitic anhydride is a most widely used acid anhydrides in industry, mainly used in the synthesis of trimellitate esters. Trimellitic anhydride is also used in the production of polyester resins for water-based and conventional solvent-based coatings and paints, to make resins for electrodeposition and powder coatings, and as a binder for glass fibres, sand, and other aggregates. In addition, trimellitic anhydride is used as an embossing agent for foam-backed vinyl flooring and as a curing agent for epoxy and other resins. It is also used as a plasticizer in materials used to store and cover food and in the synthesis of various anticorrosive surface coatings, agricultural chemicals, and pharmaceutical products.
Benzo[ghi]perylene	hexacyclo[12.8.0.0: ¹¹ .0: ¹³ .0: ¹⁴ .0: ¹⁷ .2]docosa-1(22),2,4(21),5,7,9,11,13,15,17,19-undecaene	191-24-2	205-883-8	C ₂₂ H ₁₂	Benzo[ghi]perylene, a colorless crystal like solid, belongs to the group of Polycyclic Aromatic Hydrocarbons (PAHs), occurred as a constituent together with other PAHs. PAHs are created when products like, coal, oil, gas, and garbage are burned but the burning process is not complete. PAHs can be used to conduct research. Like most PAHs, benzo[ghi]perylene is used to make dyes, plastics, pesticides, explosives and drugs. It has also been used to make bile acids, cholesterol and steroids.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Decamethylcyclotrisiloxane D5	Cyclotrisiloxane, 2,2,4,4,6,6,8,8,10,10-decamethyl-; Cyclotrisiloxane	541-02-6	208-764-9	$C_{10}H_{30}O_3Si_3$	D5 is a cyclic organic silicon substance that has the following uses: (1) as a monomer ('building block') in the production of silicone polymers. Silicone polymers may be oils, greases, rubbers and resins and have a wide range of uses, (2) as an intermediate (starting material) in the production of other organosilicon substances, (3) in dry cleaning, (4) in electronics applications, (5) in textiles applications, (6) in personal care products, (7) in household care products, and (8) as a laboratory chemical in research and development activities. The majority of these applications take place in industrial settings; however, personal care and household care products containing D5 may be used by professionals and consumers. In personal care products D5 is used as a base fluid or solvent for other larger molecules in a wide variety of products including antiperspirants, deodorants, skin creams, lotions, bath oils, suntan and shaving products, make-up and nail polishes. In household care products, much like personal care products, D5 is used as a base fluid or solvent for other larger molecules. Typically, it is used in products such as washing and cleaning products, solid and spray polishes, wax blends, and in automotive aesthetic products.
Dicyclohexyl phthalate DCHP	1,2-benzenedicarboxylic acid, 1,2-dicyclohexyl ester	84-61-7	201-545-9	$C_{20}H_{26}O_4$	It is used as a plasticizer to modify the properties of synthetic resins, in alkyl resins and cellulose nitrate to increase their stability to light and weathering, and to improve the chemical and physical properties of plastics by preventing creep.
Disodium octaborate	Boron sodium oxide; Disodium Octaborate Tetrahydrate; Disodium octaborate anhydride;	12008-41-2	234-541-0	$B_8Na_{20}O_{13}$	Disodium borate covers both its disodium octaborate anhydride and disodium octaborate tetrahydrate forms, in common use as a termiticide control or for termiticide prevention. It is also used as flame-retardant
Dodecamethylcyclotrisiloxane D6	Cyclotrisiloxane, 2,2,4,4,6,6,8,8,10,10,12,12-dodecamethyl-; Cyclohexasiloxane	540-97-6	208-762-8	$C_{12}H_{36}O_3Si_3$	D6 is a cyclic organic silicon substance that has the following uses: (1) as a monomer ('building block') in the production of silicone polymers. Silicone polymers may be oils, greases, rubbers and resins and have a wide range of uses, (2) as an intermediate (starting material) in the production of other organosilicon substances, (3) in personal care products, (4) in household care products, and (5) as a laboratory chemical in research and development activities. The majority of these applications take place in industrial settings; however, personal care and household care products containing D6 may be used by professionals and consumers. In personal care products D6 is used as a base fluid or solvent for other larger molecules in a wide variety of products including antiperspirants, deodorants, skin creams, lotions, bath oils, sunscreen and shaving products, make-up, hair care and skin cleansing products. In household care products, much like personal care products, D6 is used as a base fluid or solvent for other larger molecules. Typically, it is used in products such as washing and cleaning products, polishes and waxes.
Ethylenediamine EDA	1,2-ethanediamine; ethane-1,2-diamine; 1,2-diaminoethane; 1,2-ethylenediamine; ethane-1,2-diamine; dimEDA; 1,2-EDA; beta-aminoethylamine	107-15-3	203-468-6	$C_2H_8N_2$	Ethylenediamine is a widely used building block in chemical synthesis as precursor to various polymers. Condensates derived from formaldehyde are plasticizers. It is widely used in the production of polyurethane fibers.
Lead		7439-92-1	231-100-4	Pb	Lead is still widely used for car batteries, pigments, ammunition, cable sheathing, weights for lifting, weight belts for diving, lead crystal glass, radiation protection and in some solders. It is often used to store corrosive liquids.



TABLE 1 Continued

Substance Name	Synonym	CAS Number	EU Number	Chemical Formula	Common Uses
Octamethylcyclotetrasiloxane D4	Cyclotetrasiloxane	556-67-2	209-136-7	$C_8H_{24}O_4Si_4$	D4 is a cyclic organic silicon substance that has the following uses: (1) as a monomer ('building block') in the production of silicone polymers. Silicone polymers may be oils, greases, rubbers and resins and have a wide range of uses, (2) as an intermediate (starting material) in the production of other organosilicon substances, (3) in non-metal surface treatment, (4) in electronics applications, (5) in textiles applications, (6) in personal care products, (7) in household care products, and (8) as a laboratory chemical in research and development activities. The majority of these applications take place in industrial settings; however, personal care and household care products containing D4 may be used by professionals and consumers. In personal care products D4 is used as a base fluid or solvent for other larger molecules in a wide variety of products including antiperspirants, deodorants, skin creams, lotions, bath oils, suntan and shaving products, make-up and nail polishes. In household care products, much like personal care products, D4 is used as a base fluid or solvent for other larger molecules. Typically, it is used in products such as washing and cleaning products, solid and spray polishes, wax blends, and in automotive aesthetic products
Terphenyl, hydrogenated	HB40/00; Partially hydrogenated terphenyls; Terminol 66	61788-32-7	262-967-7	Undefined	Terphenyl, hydrogenated is used in coating products, adhesives and sealants, fillers, putties, plasters, modelling clay, heat transfer fluids and polymers, or as a plasticizer
1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one; 3-benzylidene camphor; 3-BC	Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-3- (phenylmethylene)-; 3-Benzylidene-1,7,7-trimethylbicyclo[2.2.1]heptan -2-one; 2-Bornanone, 3-benzylidene-; Benzylidenecamphor	15087-24-8	239-139-9	$C_{17}H_{20}O$	3-benzylidene camphor is an UV absorber, which may be used as UV filter in cosmetics, UV-B sunscreen, or as stabilizer. A wide range of products may benefit from such UV filter, such as plastics and rubber in addition to cosmetics.
2,2-bis(4'-hydroxyphenyl)-4-methylpentane	4-[2-(4-hydroxyphenyl)-4- methylpentan-2-yl]phenol; 4,4-isobutylethylidenediphenol	6807-17-6	401-720-1	$C_{18}H_{22}O_2$	3-benzylidene camphor is also used as intermediate in chemical productions of its derivatives. Such derivatives may include designed molecules as UV-A absorbers.
Benzo[k]fluoranthene	pentacyclo[10.7.1.0 ^{2,11} .0 ^{4,9} .0 ^{16,20}]penta-1(20),2(11),3,5,7,9,12,14,16, 18-decaene; BKFA	207-08-9	205-916-6	$C_{20}H_{12}$	2,2-bis(4'-hydroxyphenyl)-4- methylpentane is used as dye or color in various applications. It may also be used as antioxidant in various applications.
Fluoranthene	1,2-(1,8-naphthalenediyl)benzene; 1,2-Benzacenaphthene; 1,2-(1,8-Naphthalene)benzene; 1,2-(1,8-Naphthylene)benzene; Benzo[k]fluorine; NSC 6803; Idryl; RCRA Waste Number U120; Fluoranthene	206-44-0 93951-69-0	205-912-4	$C_{16}H_{10}$	Benzo[k]fluoranthene is a polycyclic aromatic hydrocarbon, which can be produced by the incomplete combustion of organic matter. It is primarily found in gasoline exhaust, cigarette smoke, coal tar, coal and oil combustion emissions, lubricating oils, used motor oils and crude oils. Fluoranthene can also be used as an intermediate for dyes (fluorescent), pharmaceuticals and agrochemicals. It is useful in the functions of as light and temperature sensitivity, heat resistance, conductivity, emittability, corrosion resistance and for detection of amino groups. They are used in the applications of thermo and light sensitizer, liquid crystal chemistry, luminescence chemistry, spectrophotometric analysis, molecular chemistry, organometallic-complexes, and biochemophology industry.