

Safety Data Sheet



Portland Cement

Section 1. Identification

Product identifier: Portland Cement

Other means of identification: Cement, hydraulic cement
 CEMEX Type I CEMEX Type II Low Alkali
 CEMEX Type II CEMEX Type III Low Alkali
 CEMEX Type I/II CEMEX Type V Low Alkali
 CEMEX Type III CEMEX Type II/V Low Alkali
 CEMEX Type II/V CEMEX Class A
 CEMEX Type V CEMEX Class C
 CEMEX Type IA CEMEX Class H
 CEMEX Type I/II Low Alkali White Cement

Chemical name: Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.

Relevant Uses: Building materials, construction application, a basic ingredient in concrete.

Manufacturers Name: CEMEX

Address: 10100 Katy Freeway, Suite 300
 Houston, TX 77043
 T Customer Care 1-800-99-CEMEX

Emergency telephone number: CHEMTREC: 1-800-424-9300

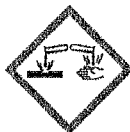
Section 2. Hazards Identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Category Classification(s): SKIN CORROSION/IRRITATION - Category 1
 EYE DAMAGE - Category 1
 SKIN SENSITIZATION - Category 1
 CARCINOGENICITY/INHALATION - Category 1

GHS label elements:

Hazard pictograms:



GHS05



GHS07



GHS08

Signal word: Danger

Hazard statements: Causes severe skin burns and eye damage
 May cause an allergic skin reaction
 Causes serious eye damage
 May cause cancer (Inhalation, Dermal).

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Precautionary Statements:

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Do not breathe dust
 Wash clothing, face, hands thoroughly after handling
 Contaminated work clothing must not be allowed out of the workplace
 Wear eye protection, protective clothing, protective gloves
 If swallowed: rinse mouth. Do NOT induce vomiting
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
 If inhaled: Remove person to fresh air and keep comfortable for breathing
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If exposed or concerned: Get medical advice/attention
 Immediately call a doctor
 Specific treatment (see Section 4 on this label)
 If skin irritation or rash occurs: Get medical advice/attention
 Take off contaminated clothing and wash it before reuse
 Wash contaminated clothing before reuse
 Dispose of contents/container to comply with local/regional/national regulations

Other Hazards:

Trace amounts of naturally occurring chemicals might be detected during chemical analysis. Trace constituents may include insoluble residue, some of which may be free Quartz (crystalline silica), calcium oxide (Also known as lime or quick lime), magnesium oxide, potassium sulfate, sodium sulfate, chromium compounds, and nickel compounds.

Section 3. Composition / Information on Ingredients

Substance/mixture:

Portland Cement - mixture

Chemical name:

Calcium compounds; calcium silicates and calcium oxides make up the majority of this product – calcium compounds can contain small amounts of iron and aluminum.

Ingredient Name	% Content	CAS number
Portland Cement Clinker	81 - 96	65997-15-1
Gypsum	4 - 9	7778-18-9
Limestone	0 - 5	1317-65-3
Granulated Blast Furnace Slag	0 - 5	65996-69-2
Kiln Bag House Dust	0 - 5	69012-63-1
Lime Kiln Dust	0 - 2	1305-78-8
Quartz (crystalline silica)	0 - 0.1	14808-60-7
Hexavalent chromium*	*	18450-29-9

Any concentration shown as a range is to protect confidentiality or is due to process variation.

*Hexavalent chromium is included due to dermal sensitivity associated with the component.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First-Aid Measures

Description of necessary first aid measures:

General:

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye contact:

Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove

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any contact lenses. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician.

Inhalation:	Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of Portland Cement requires immediate medical attention. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the individual is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
Skin contact:	Get medical attention immediately. Heavy exposure to Portland Cement dust, wet concrete or associated water requires prompt attention. Quickly remove contaminated clothing, shoes, and leather goods such as watchbands and belts. Quickly and gently blot or brush away excess Portland Cement. Immediately wash thoroughly with lukewarm, gently flowing water and non-abrasive pH neutral soap. Seek medical attention for rashes, burns, irritation, dermatitis and prolonged unprotected exposures to wet cement, cement mixtures or liquids from wet cement. Burns should be treated as caustic burns.
Ingestion:	Get medical attention immediately. Call a poison center or physician. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Have victim drink 60 to 240 mL (2 to 8 oz.) of water. Stop giving water if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Potential symptoms and effects from acute exposures (delayed or immediate):

Eye contact:	Causes serious eye damage.
Inhalation:	May cause respiratory irritation.
Skin contact:	Causes severe burns. Discomfort or pain cannot be relied upon to alert a person to a serious injury. You may not feel pain or the severity of the burn until hours after the exposure. Chemical burns must be treated promptly by a physician. May cause an allergic skin reaction.
Ingestion:	Not expected to be a significant route of entry. May cause burns to mouth, throat and stomach.

Potential symptoms and effects from over-exposures:

Eye contact:	Adverse symptoms may include the following: pain, watering and redness
Inhalation:	Adverse symptoms may include the following: respiratory tract irritation and coughing
Skin contact:	Adverse symptoms may include the following: pain or irritation, redness and blistering may occur, skin burns, ulceration and necrosis may occur
Ingestion:	Adverse symptoms may include the following: stomach pains

Recommendations for immediate medical attention / treatment:

If large quantities have been Ingested or inhaled:	Seek medical treatment and contact poison treatment specialist immediately.
Notes to physician:	Treat symptomatically.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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Section 5. Fire-fighting Measures

Extinguishing media

Suitable extinguishing media:	Non-flammable. Use an extinguishing agent suitable for the surrounding fire.
Specific hazards arising from the chemical:	No specific fire or explosion hazard.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides and metal oxide/oxides products:
Special protective actions for firefighters:	Evacuate area. Fight fire with normal precautions from a reasonable distance. Move containers from fire area if this can be done without risk.
Special protective equipment for fire-fighters:	Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Wear appropriate NIOSH Approved respirator when ventilation is inadequate. Put on appropriate personal protective equipment. For personal protective clothing requirements, please see Section 8.

For non-emergency personnel:	Evacuate area, if necessary. Contact emergency personnel, if needed. Do not breathe dust. Stay upwind.
For emergency responders:	Evacuate surrounding areas if necessary. Keep unnecessary and unprotected personnel from entering. Do not breathe dust. Provide adequate ventilation.
Environmental precautions:	Avoid release to the environment. Contain the spill to avoid the discharge of spilled material into drains, surface waters and/or groundwater. If the spilled material enters any drainage systems, surface waters and/or groundwater, follow all applicable local, state and federal laws and regulations for additional clean-up and/or reporting requirements.

Methods and materials for containment and cleaning up

Small and large spills:	Wear appropriate personal protective equipment as described in Section 8 for cleaning, containing and removing the spill. Minimize generation of dust. For small spills, clean with a vacuum with a filtration system sufficient to remove and prevent recirculation of cement dust (a vacuum equipped with a high-efficiency particulate air (HEPA) filter is recommended). For large spills, use control dust measures and carefully scoop or shovel into clean dry container for later reuse or disposal. DO NOT USE COMPRESSED AIR TO CLEAN SPILLS. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
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Section 7. Handling and Storage

Precautions for safe handling

Protective measures:	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate NIOSH Approved respirator when ventilation is inadequate.
Advice on general	Eating, drinking and smoking should be prohibited in areas where this material is handled,

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occupational hygiene: stored and processed. Workers should wash hands and face before eating, drinking and smoking.

Conditions for safe storage: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

Section 8. Exposure Controls / Personal Protection

Occupational Exposure Limits

Ingredient name	Exposure limits
Portland Cement Clinker	ACGIH TLV (United States, 3/2012). TWA: 1 mg/m ³ 8 hours. Form: Respirable NIOSH REL (United States, 6/2009). TWA: 5 mg/m ³ 10 hours. Form: Respirable TWA: 10 mg/m ³ 10 hours. Form: Total OSHA PEL (United States, 6/2010). TWA: 5 mg/m ³ 8 hours. Form: Respirable TWA: 15 mg/m ³ 8 hours. Form: Total
Quartz (crystalline silica)	ACGIH TLV (United States, 3/2012). TWA: 0.025 mg/m ³ 8 hours. Form: Respirable NIOSH REL (United States, 6/2009). TWA: 0.05 mg/m ³ 8 hours. Form: Respirable OSHA PEL Z-3 (United States, 9/2005). TWA: 10mg/m ³ divided by %SiO ₂ + 2: Respirable TWA: 30mg/m ³ divided by %SiO ₂ + 2: Total
Limestone	ACGIH TLV (United States, 3/2012). TWA: 10 mg/m ³ 8 hours. Form: Total NIOSH REL (United States, 6/2009). TWA: 5 mg/m ³ 10 hours. Form: Respirable TWA: 10 mg/m ³ 10 hours. Form: Total Dust OSHA PEL (United States, 6/2010). TWA: 5 mg/m ³ 8 hours. Form: Respirable TWA: 15 mg/m ³ 8 hours. Form: Total dust
Gypsum	ACGIH TLV (United States, 3/2012). TWA: 10 mg/m ³ 8 hours. Form: Respirable NIOSH REL (United States, 6/2009). TWA 5 mg/m ³ 8 hours. Form: Respirable TWA 10 mg/m ³ 8 hours. Form: Total OSHA PEL Z-1 (United States, 2/2006). TWA 5 mg/m ³ 8 hours. Form: Respirable TWA 15 mg/m ³ 8 hours. Form: Total
Particulates Not Otherwise Regulated (Total Dust)	ACGIH TLV (United States, 3/2012). TWA: 3 mg/m ³ 8 hours. Form: Respirable TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2010). TWA: 5mg/m ³ 8 hours. Form: Respirable TWA: 15 mg/m ³ 8 hours. Form: Total dust

Controls

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Hygiene

Wash Clean water should always be readily available for skin and (emergency) eye washing. Periodically wash areas contacted by Portland Cement with a pH neutral soap and clean, uncontaminated water. If clothing becomes saturated with Portland Cement, garments should be removed and replaced with clean, dry clothing.

Remove protective equipment and saturated clothing before entering eating areas.

PPE

Eye/face protection: To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields when handling dust or wet cement. Wearing contact lenses when working with cement is not recommended.

Hand protection: Use impervious, waterproof, and alkali-resistant gloves. Do not rely on barrier creams in place of impervious gloves. Do not get Portland Cement inside gloves. Recommended material: Nitrile®

Body protection: Use impervious, waterproof, abrasion and alkali-resistant boots and protective long-sleeved and long-legged clothing to protect the skin from contact with wet Portland Cement. To reduce foot and ankle exposure, wear impervious boots that are high enough to prevent Portland Cement from getting inside them. Do not get Portland Cement inside boots, shoes, or gloves. Remove clothing and protective equipment that becomes saturated with cement and immediately wash exposed areas of the body.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved. Footwear and other gear to protect the skin should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, particulate filtering NIOSH Approved respirator if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator.

Section 9. Physical and Chemical Properties

Physical State:	Solid. [Powder.]	Lower and upper explosive (flammable) limits:	Not applicable.
Color:	Gray or white.	Vapor pressure:	Not applicable.
Odor:	Odorless.	Vapor density:	Not applicable.
Odor threshold:	Not available.	Relative density:	2.7 to 3.15
pH (in water):	12 - 13	Solubility:	Slightly soluble in water.
Melting point:	Not available.	Solubility in water:	0.1 to 1%
Boiling point:	>1000°C (>1832°F)	Partition coefficient: n-octanol/water:	Not applicable.
Flash point:	Not flammable. Not combustible.	Auto-ignition temperature:	Not applicable.
Burning time:	Not available.	Decomposition temperature:	Not available.
Burning rate:	Not available.	SADT:	Not available.
Evaporation rate:	Not applicable.	Viscosity:	Not applicable.

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Flammability (solid, gas): Not applicable.

Section 10. Stability and Reactivity

- Reactivity:** Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is substantially complete.
- Chemical stability:** The product is stable.
- Possibility of hazardous reactions:** Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid:** No specific data.
- Incompatible materials:** Reactive or incompatible with the following materials: oxidizing materials, acids, aluminum and ammonium salt. Portland Cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved. Reacts with acids, aluminum metals and ammonium salts. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Limestone ignites on contact with fluorine and is incompatible with acids, alum, ammonium salts, and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silicates dissolve readily in hydrofluoric acid producing a corrosive gas — silicon tetrafluoride.
- Hazardous decomposition products:** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Toxicological Effects

- Acute toxicity:** Portland Cement LD50/LC50 = Not available
- Irritation/Corrosion:** Skin: May cause serious burns in the presence of moisture.
Eyes: Causes serious eye damage. May cause burns in the presence of moisture.
Respiratory: May cause respiratory tract irritation.
- Sensitization:** May cause sensitization due to the potential presence of trace amounts of hexavalent chromium.
- Mutagenicity:** Not classified.
- Reproductive toxicity:** Not classified.
- Teratogenicity:** Not classified.
- Aspiration hazard:** Not classified.
- Carcinogenicity Classification:**

Ingredient	OSHA	IARC	ACGIH	NTP
Portland Cement Clinker	—	—	A4	—
Quartz (crystalline silica)	—	1	A2	Known to be a human carcinogen.

Specific target organ toxicity (single exposure): Product Not Classified

Ingredient	Category	Route of Exposure	Target Organs
Quartz (crystalline silica)	Category 3	Inhalation	Respiratory tract irritation

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Specific target organ toxicity (repeated exposure): Product Not Classified

Ingredient	Category	Route of Exposure	Target Organs
Quartz (crystalline silica)	Category 2	Inhalation	Respiratory tract and kidneys

Routes of exposure - Dermal contact, Eye contact, Inhalation, and Ingestion.

Potential acute health effects:	Eye contact: Causes serious eye damage. Inhalation: May cause respiratory irritation. Skin contact: Causes severe burns. May cause an allergic skin reaction. Ingestion: May cause burns to mouth, throat and stomach.
Symptoms related to the physical, chemical and toxicological characteristics:	Eye contact: Adverse symptoms may include the following: pain, watering, redness Inhalation: Adverse symptoms may include the following: respiratory tract irritation, coughing Skin contact: Adverse symptoms may include the following: pain or irritation, redness, blistering may occur, skin burns, ulcerations and necrosis may occur Ingestion: Adverse symptoms may include the following: stomach pains
Delayed and immediate effects and also chronic effects from short and long term exposure:	Short term exposure Potential immediate effects: No known significant effects or critical hazards. Potential delayed effects: No known significant effects or critical hazards. Long term exposure Potential immediate effects: No known significant effects or critical hazards. Potential delayed effects: No known significant effects or critical hazards.
Potential chronic health effects:	General: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. If sensitized to hexavalent chromium, a severe allergic dermal reaction may occur when subsequently exposed to very low levels. Carcinogenicity: Quartz (crystalline silica) is considered a hazard by inhalation. IARC has classified Quartz (crystalline silica) as a Group 1 substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. Excessive exposure to Quartz (crystalline silica) can cause silicosis, a non-cancerous lung disease. Mutagenicity: No known significant effects or critical hazards. Teratogenicity: No known significant effects or critical hazards. Developmental effects: No known significant effects or critical hazards. Fertility effects: No known significant effects or critical hazards.
Numerical measures of toxicity:	There are no data available - acute toxicity estimates.

Section 12. Ecological

Toxicity

Persistence and degradability:	There are no data available.
Bioaccumulation potential:	There are no data available.
Mobility in soil:	Soil/water partition coefficient (Koc): Not available.
Other adverse effects:	No known significant effects or critical hazards.
Ecotoxicity:	No recognized unusual toxicity to plants or animals

Section 13. Disposal Considerations

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Disposal methods: Salvage spilled cement material where possible. Uncontaminated cement material may be reused. Dispose of waste material in accordance with local, state and federal laws and regulations.

Section 14. Transport Information

Special precautions for user: Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not Regulated.

Transport Parameters	DOT Classification	IMDG	IATA
UN Number	Not Regulated	Not Regulated	Not Regulated
UN Proper Shipping Name	-	-	-
Transport Hazard Class	-	-	-
Packing Group	-	-	-
Environmental Hazard	None	None	None
Additional Information	-	-	-

Section 15. Regulatory Information

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200

This product is considered a "hazardous chemical" under this regulation, and should be part of any hazard communication program.

Status under CERCLA/SUPERFUND 40 CFR 117 and 302

Not listed.

Hazard Category under SARA (Title III), Sections 311 and 312

This product qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III), Section 313

This cement product does not contain Emergency Planning and Community Right to Know (EPCRA) Section 313 chemicals in excess of the applicable de minimis concentration specified in EPCRA Section 313 Section 372.38(a). Trace amounts of naturally occurring chemicals might be detected during chemical analysis.

Status under TSCA (as of May 1997)

The ingredients of this product are listed on the TSCA inventory or are exempt.

Status under the Federal Hazardous Substances Act

This product is a "hazardous substance" subject to statutes promulgated under the subject act.

Status under California Proposition 65

This product contains up to 0.05 percent of chemicals (trace elements) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

State Right to Know:

Portland Cement Clinker (65997-15-1)

U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Washington - Permissible Exposure Limits - TWAs

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Quartz (crystalline silica) (14808-60-7)

U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Washington - Permissible Exposure Limits - TWAs

Gypsum (7778-18-9)

U.S. - New Jersey - Right to Know Hazardous Substance List

Limestone (1317-65-3)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Washington - Permissible Exposure Limits - TWAs

Section 16. Other Information

Approval or Revision History

Date of issue (mm/dd/yyyy):	July 1998
Revision:	April 2011 (Michael Tilton)
Revision:	May 2015 - Revised Section(s) per HCS-GHS
Revision:	April 2017 - related to address
Revision:	August 2019 - related to verbiage to reflect NIOSH Approved respirator(s)

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of Portland Cement as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland Cement to produce Portland Cement products. Users should review other relevant material safety data sheets before working with this Portland Cement or working on Portland Cement products, for example, Portland Cement concrete.

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Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
 CAS — Chemical Abstract Service
 CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
 CFR — Code of Federal Regulations DOT — Department of Transportation
 GHS — Globally Harmonized System Globally Harmonized System
 HEPA - High Efficiency Particulate Air
 IATA — International Air Transport Association
 IARC — International Agency for Research on Cancer
 IMDG — International Maritime Dangerous Goods
 NIOSH — National Institute of Occupational Safety and Health
 NOEC — No Observed Effect Concentration
 NTP — National Toxicology Program
 OSHA — Occupational Safety and Health Administration
 PEL — Permissible Exposure Limit
 REL — Recommended Exposure Limit RQ — Reportable Quantity
 SARA — Superfund Amendments and Reauthorization Act

Safety Data Sheet

SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations