

Safety Data Sheet Slag Cement

Section 1. Identification

GHS product identifier: Slag Cement

Chemical name: Calcium compounds, calcium silicate compounds, and other calcium compounds containing

iron and aluminum make up the majority of this product.

Other means of identification: Cement, Slag, ALLCEM, Type S Cement, Granulated Blast-Furnace Slag Cement, Ground

Granulated Blast-Furnace Slag, GGBFS, Iron Slag Cement, Granular Pig Iron Slag Cement, Granular Water Granulated Slag Cement, Water Granulated Blast-Furnace Slag Cement

Relevant identified uses of the substance or mixture and uses advised against:

Building materials, construction, a basic ingredient in concrete.

Supplier's details: 300 E. John Carpenter Freeway, Suite 1645

Irving, TX 75062 (972) 653-5500

Emergency telephone number (24 hours): CHEMTREC: (800) 424-9300

Section 2. Hazards Identification

Overexposure to cement can cause serious, potentially irreversible skin or eye damage in the form of chemical (caustic) burns, including third degree burns. The same serious injury can occur if wet or moist skin has prolonged contact exposure to dry cement.

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

Classification of the SKIN CORROSION/IRRITATION – Category 1

substance or mixture: SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1

SKIN SENSITIZATION - Category 1

CARCINOGENICITY/INHALATION - Category 1A

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

[Respiratory tract irritation] - Category 3

GHS label elements

Hazard pictograms:







Signal word: Danger

Hazard statements: Causes severe skin burns and eye damage.

May cause an allergic skin reaction. May cause respiratory irritation.

May cause cancer.

Precautionary statements:

Response:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been

read and understood. Avoid breathing dust. Use outdoors in a well ventilated area. Wash any exposed body parts thouroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated clothing must not be allowed out of the workplace. If exposed or concerned: Immediately get medical advice/attention if you feel unwell or irritation

or rash occurs.If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cotinously with water for several minutes. Remove contact lenses, if present and easy to do.If inhaled: Remove person to fresh air and keep comfortable

for breathing. If swallowed: Rinse mouth. Do not induce vomiting.

Storage: Restrict or control access to stockpile areas (store locked up). Engulfment hazard: To prevent

burial or suffocation, do not enter a confined space, such as a silo, bulk truck or other storage container or vessel that stores or contains slag cement without an effective procedure for

assuring safety. Store in a well ventilated area. Keep container tightly closed.



Disposal: Dispose of contents/container in accordance with local/regional/national/international

regulations.

Hazards not otherwise classified

(HNOC):

None known

Supplemental Information: Respirable Crystalline Silica (RCS) may cause cancer. Repeated inhalation of respirable

crystalline silica (quartz) may cause lung cancer according to IARC and NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may

also be present or formed under certain industrial processes.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Chemical Name: Calcium compounds, calcium silicate compounds, and other calcium compounds containing

iron and aluminum make up the majority of this product.

CAS number/other identifiers

Ingredient name	%	CAS number
Slags	100%	65996-69-2
The structure of blended cement may contain the following in some concentration ranges:		
Calcium oxide	A-B	1305-78-8
Quartz	C-D	14808-60-7
Hexavalent chromium*	E-F	18450-29-9
Magnesium oxide	G-H	1309-48-4

Any concentration shown as a range is to protect confidentiality or is due to process variation. Slag is a nonmetallic byproduct from the production or iron. Trace amounts of chemicals may be detected during chemical analysis.

*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

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

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 any contact lenses. Continue to rinse for at least 20

minutes. Chemical burns must be treated promptly by a physician.

classified as hazardous to health or the environment and hence require reporting in this section.

Inhalation: Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of slag 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 a recovery position and get medical attention immediately. Maintain and open

airway.

Skin Contact: Get medical attention immediately. Heavy exposure to cement slag 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 cement. Immediately wash thoroughly with lukewarm, gently flowing water and non-abrasive pH natural soap. Seek medical attention for rashes, burns, irritation, dermatitis and prolonged unprotected exposures to wet slag cement, slag cement mixtures or liquids from wet slag cement. Burns should be treated as caustic burns. Slag cement causes skin burns with little warning. 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. In the event of any complaints or symptoms, avoid further exposure.

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.

Most important symptoms/effects, acute and delayed 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.

May cause burns to mouth, throat and stomach. Ingestion:

Over-exposure signs/symptoms

Eve contact: Adverse symptoms may include the following: pain, watering and redness

Inhalation: Adverse symptoms may include the following: respiratory tract irritation and coughing Adverse symptoms may include the following: pain or irritation, redness and blistering may Skin contact:

occur, skin burns, ulceration and necrosis may occur

Ingestion: Adverse symptoms may include the following: stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have

been ingested or inhaled.

Specific treatments: Not applicable.

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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Use an extinguishing agent suitable for the surrounding fire. Suitable extinguishing media: Unsuitable extinguishing media: Do not use water jet or water-based fire extinguishers. Specific hazards arising from the

chemical: No specific fire or explosion hazard.

Hazardous thermal decomposition Decomposition products may include the following materials: carbon dioxide, carbon monoxide,

sulfur oxides and metal oxide/oxides **Products:**

Special protective actions for fire-Move containers from fire area if this can be done without risk. Use water spray to keep fire-

exposed containers cool. fighters:

Special protective equipment for fire-Fire-fighters should wear appropriate protective equipment and self-contained breathing

apparatus (SCBA) with a full face-piece operated in positive pressure mode. fighters:

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate

> surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For personal protective clothing requirements, please see Section 8.

For emergency responders:

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.



Inform the relevant authorities if the product has entered the environment, including waterways, soil or air. Materials can enter waterways through drainage systems.

Methods and materials for containment and cleaning up

Small spill: Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with

equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of waste material by using a licensed

waste disposal contractor.

Large spill: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with

equipment fitted with a HEPA filter and place dust in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Large spills to waterways may be hazardous due to alkalinity of the product. Dispose of waste material using a licensed waste disposal contractor. Note: see section 1 for emergency contact information and Section 13 for waste

disposal.

Section 7. Handling and storage

Precautions for safe handling

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Protective measures:

Advice on general occupational hygiene:

Conditions for safe storage, including any incompatibilities:

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 respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material and keep the container tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. A key to using the product safely requires the user to recognize that slag cement reacts chemically with water to produce calcium hydroxide which can cause severe chemical burns. Every attempt should be made to avoid skin and eye contact with slag cement. Do not get slag cement inside boots, shoes or gloves. Do not allow wet, saturated clothing to remain against the skin. Promptly remove clothing and shoes that are dusty or wet with slag cement mixtures. Launder/clean clothing and shoes before reuse. Do not enter a confined space that stores or contains slag cement unless appropriate procedures and protection are available. Slag cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Cement, slag, chemicals (PNOC)	ACGIH TLV (United States, 3/2012) TWA: 3 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total
	OSHA PEL (United States, 6/2010) TWA: 5 mg/m³. 8 hours. Form: Respirable fraction TWA: 15 mg/m³. 8 hours. Form: Total dust

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CGIH TLV (United States, 3/2012) NA: 2 mg/m³ 8 hours
VA. 2 mg/m² 6 nours
IOSH REL (United States, 6/2009)
NA: 2 mg/m³ 10 hours.
SHA PEL (United States, 6/2010)
WA: 5 mg/m³ 8 hours.
CGIH TLV (United States, 3/2012)
NA: 10 mg/m ³ 8 hours. Form: Inhalable fraction
SHA PEL (United States, 6/2010)
NA: 15 mg/m³ 8 hours. Form: Total particulates
CGIH TLV (United States, 3/2012)
NA: 0.025 mg/m³ 8 hours. Form: Respirable fraction
IOSH REL (United States, 6/2009)
NA: 0.05 mg/m³ 10 hours. Form: Respirable dust
SHA PEL Z-3 (United States, 9/2005)
NA: 10 mg/m³ divided by % SiO ₂ + 2: Respirable
NA: 30 mg/m³ divided by % SiO₂ + 2: Total

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.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply

with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures: Clean water should always be readily available for skin and (emergency) eye washing. Periodically wash

areas contacted by slag cement with a pH neutral soap and clean, uncontaminated water. If clothing becomes saturated with slag cement, garments should be removed and replaced with clean, dry clothing.

Eye/face protection: To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields when

handling dust or wet slag cement. Wearing contact lenses when working with slag cement is not

recommended.

Skin protection

Hand protection: Use impervious, waterproof, abrasion and alkali-resistant gloves. Do not rely on barrier creams in place

of impervious gloves. Do not get slag cement inside gloves.

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 slag cement. To reduce foot and ankle exposure, wear impervious boots that are high enough to prevent slag cement from getting inside them. Do not get slag cement inside boots, shoes, or gloves. Remove clothing and protective equipment that

becomes saturated with slag 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.

Respiratory protection: Use properly fitted, particulate filter respirator complying with an approved standard 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

Appearance

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Physical State: Solid. [Powder] Color: Gray or white Odor: Odorless Odor threshold: Not available

8-11 [Conc. (% w/w): 1%]

Melting point: Not available

Boiling point: >1000°C (>1832°F)

Not flammable. Not combustible Flash point: Not available

Burning time: Burning rate: Not available **Evaporation Rate:** Not applicable Flammability (solid, gas): Not applicable Lower and Upper explosive flammable limits Not applicable Vapor pressure: Not applicable Vapor density: Not applicable Relative density: 2.3 to 3.1

Solubility: Slightly soluble in water

Solubility in water: 0.1 to 1%

Partition coefficient: n-octanol/water: Not applicable Not applicable Auto-ignition temperature: **Decomposition temperature:** Not available SADT: Not available Not applicable Viscosity:

Section 10. Stability and reactivity

Reactivity: Reacts slowly with water forming silicates and calcium hydroxide.

Chemical Stability: The product is stable.

Possibility of hazardous reactions: Under normal circumstances 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. 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. 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

Information on toxicological effects

Slag Cement LD50/LC50 = Not available Acute toxicity:

Irritation/Corrosion: Skin: May cause skin irritation. 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: There are no data available.

Carcinogenicity: Classification below:

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Quartz	-	1	A2	Known to be a human carcinogen.

Reproductive toxicity: There are no data available. Teratogenicity: There are no data available.

Specific target organ toxicity (single exposure)

Name	Category	Route of Exposure	Target Organs
Calcium oxide	Category 3	Inhalation and skin contact	Respiratory tract irritation, skin irritation



Specific target organ toxicity (repeated exposure)

Name	Category	Route of Exposure	Target Organs
Quartz	Category 1	Inhalation	Respiratory tract and kidneys

Aspiration hazard: There are no data available.

Information on the likely routes of exposure

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

Short term exposure

Delayed and immediate effects and also chronic effects from short and long 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: Slag cement is not classifiable as a human carcinogen. Crystalline silica is considered a hazard by inhalation. IARC has classified 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 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: Acute toxicity estimates: There are no data available.

Section 12. Ecological Information

Toxicity

Product/ingredient name	Result	Species	Exposure
Calcium oxide	Chronic NOEC 100 mg/L Fresh water	Fish-Oreochromis niloticus-Juvenile (Fledgling, Hatchling, Weanling)	46 days

Persistence and degradability: There are not data available. Bioaccumulative potential: There are not data available.

Mobility in soil: Soil/water partition coefficient (Koc): Not available.

Other adverse effects: No known significant effects or critical hazards.



Section 13. Disposal considerations

Disposal methods:

The generation of waste should be avoided or minimized wherever possible. Disposal of this product. solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor. Untreated waste should not be released to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff, and contact with soil, waterways, drains and sewers.

Section 14. Transportation information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	None.	None.	None.
Additional information	-	-	-

Special precautions for user:

Transport within user's premises: always transport in closed containers that are upright and secure. 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 available.

Section 15. Regulatory Information

TSCA 6 final risk management: Chromium, ion (Cr6+)

United States inventory (TSCA 8b): Cements are considered to be statutory mixtures under TSCA. CERCLA: This product is not listed as a

CERCLA substance

Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs) - Not listed

Clean Air Act Section 602: Class I Substances - Not listed Clean Air Act Section 602: Class II Substances - Not listed DEA List I Chemicals: (Precursor Chemicals) - Not listed DEA List II Chemicals: (Essential Chemicals) - Not listed

SARA 311/312

Classification: Immediate (acute) health hazard Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Calcium oxide Quartz Chromium, ion (Cr6+)	A-B	No	No	No	Yes	No
	>0.1	No	No	No	No	Yes
	<0.1	No	No	No	Yes	Yes



SARA 313

	Product name	CAS number	%
Form R-Report requirements	Chromium, ion (Cr6+)	8540-29-9	<0.1

State regulations

Massachusetts: Listed

New York: None of the components are listed.

New Jersey: Listed Pennsylvania: Listed

California Prop. 65

WARNING: This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the above warning in the absence of definitive testing to prove the defined risks do not exist.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Quartz	Yes	No	No	No
Chromium, ion (Cr6+)	Yes	Yes	0.001µg/day (inhalation)	8.2 micrograms/day (ingestion)

International regulations

International lists: Canadian Domestic Substances List (DSL): Portland cement is included on the DSL.

ECC - EINECS: Listed

Section 16. Other Information

Date of issue: 06/01/2015 Version: 06/01/2015 Revised Section(s): N/Ap

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of this slagcement 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 this slag cement to produce slag cement products. Users should review other relevant material safety data sheets before working with this slag cement or working on related slag cement products.

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Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists

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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 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

SDS — Safety Data Sheet

TLV — Threshold Limit Value

TPQ — Threshold Planning Quantity

TSCA — Toxic Substances Control Act

TWA — Time-Weighted Average

UN — United Nations