

## Safety Data Sheet

### D-LIMONENE

Version 1.8

Revision Date: 08/15/2025

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name** : D-LIMONENE

**Manufacturer or supplier's details**

**Company** : Univar Solutions USA

**Address** : 3075 Highland Pkwy Suite 200  
Downers Grove, IL 60515  
United States of America (USA)

**Emergency telephone number:**  
Transport North America: CHEMTREC (1-800-424-9300)  
CHEMTREC INTERNATIONAL Tel # 703-527-3887

**Additional Information:** : Responsible Party: Product Compliance Department  
E-mail: SDSNA@univarsolutions.com  
SDS Requests: 1-855-429-2661  
Website: www.univarsolutions.com

#### SECTION 2. HAZARDS IDENTIFICATION

##### GHS Classification

Flammable liquids : Category 3

Skin irritation : Category 2

Eye irritation : Category 2B

Skin sensitisation : Category 1

Aspiration hazard : Category 1

##### GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.  
H304 May be fatal if swallowed and enters airways.  
H315 + H320 Causes skin and eye irritation.  
H317 May cause an allergic skin reaction.

Precautionary statements : **Prevention:**  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces.  
No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

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P264 Wash skin thoroughly after handling.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves/ eye protection/ face protection.  
**Response:**  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P331 Do NOT induce vomiting.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
**Storage:**  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

#### Other hazards

None known.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

#### Hazardous components

| CAS-No.   | Chemical name | Weight percent |
|-----------|---------------|----------------|
| 5989-27-5 | d-Limonene    | 90 - 100       |

Any Concentration shown as a range is due to batch variation.

### SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.  
Show this safety data sheet to the doctor in attendance.  
Symptoms of poisoning may appear several hours later.  
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water.  
If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution.  
Remove contact lenses.

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|              |                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If swallowed | Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist.<br>: Keep respiratory tract clear.<br>Do not induce vomiting without medical advice.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Take victim immediately to hospital. |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### SECTION 5. FIREFIGHTING MEASURES

|                                               |                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suitable extinguishing media                  | : Alcohol-resistant foam<br>Carbon dioxide (CO2)<br>Dry chemical                                                                                                                                                                                                                                                                                                                |
| Unsuitable extinguishing media                | : High volume water jet                                                                                                                                                                                                                                                                                                                                                         |
| Specific hazards during fire-fighting         | : Do not allow run-off from fire fighting to enter drains or water courses.                                                                                                                                                                                                                                                                                                     |
| Hazardous combustion products                 | : Carbon oxides<br>Acrid smoke and fumes                                                                                                                                                                                                                                                                                                                                        |
| Further information                           | : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.<br>Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.<br>For safety reasons in case of fire, cans should be stored separately in closed containments.<br>Use a water spray to cool fully closed containers. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary.<br>Use personal protective equipment.                                                                                                                                                                                                                                                                  |

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

|                                                                     |                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.<br>Ensure adequate ventilation.<br>Remove all sources of ignition.<br>Evacuate personnel to safe areas.<br>Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. |
| Environmental precautions                                           | : Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>If the product contaminates rivers and lakes or drains inform respective authorities.                                                             |
| Methods and materials for containment and cleaning up               | : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).                     |

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#### SECTION 7. HANDLING AND STORAGE

- |                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advice on protection against fire and explosion | : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Advice on safe handling                         | : Avoid formation of aerosol.<br>Do not breathe vapours/dust.<br>Avoid exposure - obtain special instructions before use.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Take precautionary measures against static discharges.<br>Provide sufficient air exchange and/or exhaust in work rooms.<br>Open drum carefully as content may be under pressure.<br>Dispose of rinse water in accordance with local and national regulations.<br>Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |
| Conditions for safe storage                     | : No smoking.<br>Keep container tightly closed in a dry and well-ventilated place.<br>Containers which are opened must be carefully resealed and kept upright to prevent leakage.<br>Observe label precautions.<br>Electrical installations / working materials must comply with the technological safety standards.                                                                                                                                                                                                                                                                                                                                                                                                                                    |

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

##### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

##### Personal protective equipment

- |                          |                                                                                                                                                |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Respiratory protection   | : No personal respiratory protective equipment normally required.<br>In the case of vapour formation use a respirator with an approved filter. |
| Hand protection          |                                                                                                                                                |
| Remarks                  | : The suitability for a specific workplace should be discussed with the producers of the protective gloves.                                    |
| Eye protection           | : Eye wash bottle with pure water<br>Tightly fitting safety goggles                                                                            |
| Skin and body protection | : Impervious clothing<br>Choose body protection according to the amount and concentration of the dangerous substance at the work place.        |
| Hygiene measures         | : When using do not eat or drink.<br>When using do not smoke.                                                                                  |

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Wash hands before breaks and at the end of workday.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|                                             |                                                                      |
|---------------------------------------------|----------------------------------------------------------------------|
| Appearance                                  | : liquid                                                             |
| Colour                                      | : clear, light yellow                                                |
| Odour                                       | : Citrus                                                             |
| Odour Threshold                             | : No data available                                                  |
| pH                                          | : No data available                                                  |
| Freezing Point (Freezing Point)             | : -74 °C (-101 °F)                                                   |
| Boiling Point (Boiling point/boiling range) | : 176 °C (349 °F)                                                    |
| Flash point                                 | : 46 °C (115 °F)                                                     |
| Evaporation rate                            | : No data available                                                  |
| Flammability (solid, gas)                   | : No data available                                                  |
| Upper explosion limit                       | : 6.1 %(V)                                                           |
| Lower explosion limit                       | : 0.7 %(V)                                                           |
| Vapour pressure                             | : 2 mmHg @ 20 °C (68 °F)                                             |
| Relative vapour density                     | : No data available                                                  |
| Relative density                            | : 0.84 @ 20 - 25 °C (68 - 77 °F)<br>Reference substance: (water = 1) |
| Density                                     | : 0.84 g/cm3 @ 20 - 25 °C (68 - 77 °F)                               |
| Water solubility                            | : No data available                                                  |
| Solubility in other solvents                | : No data available                                                  |
| Partition coefficient: n-octanol/water      | : No data available                                                  |
| Auto-ignition temperature                   | : 237 °C                                                             |
| Thermal decomposition                       | : No data available                                                  |

**SECTION 10. STABILITY AND REACTIVITY**

|                                    |                                                                  |
|------------------------------------|------------------------------------------------------------------|
| Reactivity                         | : No dangerous reaction known under conditions of normal use.    |
| Chemical stability                 | : Stable under normal conditions.                                |
| Possibility of hazardous reactions | : Vapours may form explosive mixture with air.                   |
| Conditions to avoid                | : Keep away from heat, flame, sparks and other ignition sources. |
| Incompatible materials             | : Strong acids<br>Strong oxidizing agents                        |
| Hazardous decomposition products   | : Carbon oxides                                                  |

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**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity****Product:**

Acute oral toxicity : Acute toxicity estimate: 4,444 mg/kg

**Components:****5989-27-5:**Acute oral toxicity : LD50 (Rat): 4,400 mg/kg  
Assessment: The component/mixture is minimally toxic after single ingestion.

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity**Skin corrosion/irritation****Components:****5989-27-5:**Species: Rabbit  
Result: Irritating to skin.**Serious eye damage/eye irritation****Components:****5989-27-5:**Species: Rabbit  
Result: No eye irritation**Respiratory or skin sensitisation****Components:****5989-27-5:**Test Type: lymph node assay  
Species: Mouse  
Result: May cause sensitisation by skin contact.**Germ cell mutagenicity****Components:****5989-27-5:**Genotoxicity in vitro : Test Type: Mammalian cell gene mutation assay  
Species: mouse lymphoma cells  
Metabolic activation: with and without metabolic activation

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Result: negative

Genotoxicity in vivo

: Test Type: DNA damage and/or repair  
Species: Rat  
Cell type: Kidney cells  
Application Route: Oral  
Result: negative

Germ cell mutagenicity -  
Assessment

: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

#### Carcinogenicity

##### Components:

##### **5989-27-5:**

Carcinogenicity - Assessment  
**IARC**

: Not classifiable as a human carcinogen.

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

##### **OSHA**

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

##### **NTP**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

##### **ACGIH**

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

#### Reproductive toxicity

##### Components:

##### **5989-27-5:**

Reproductive toxicity - Assessment

Fertility classification not possible from current data.

Teratogenicity - Assessment

: Embryotoxicity classification not possible from current data.

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**Aspiration toxicity****Components:****5989-27-5:**

May be fatal if swallowed and enters airways.

**Further information****Product:**

Remarks: Solvents may degrease the skin.

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****5989-27-5:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.702 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.36 mg/l  
Exposure time: 48 h  
Test Type: static test

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 150 mg/l  
Exposure time: 72 h  
Test Type: static test

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: 0.19 mg/l  
Exposure time: 8 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.08 mg/l  
Exposure time: 21 d

Acute aquatic toxicity- Assessment : Very toxic to aquatic life.

Chronic aquatic toxicity- Assessment : Very toxic to aquatic life with long lasting effects.

**Persistence and degradability**

No data available

**Bioaccumulative potential****Components:****5989-27-5:**

Bioaccumulation : Bioconcentration factor (BCF): 908.5

Partition coefficient: n-octanol/water : log Pow: 4.57

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log Pow: 4.38 (37 °C)

pH: 7.2

**Mobility in soil**

No data available

**Other adverse effects****Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

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## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.  
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.  
Do not burn, or use a cutting torch on, the empty drum.

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## SECTION 14. TRANSPORT INFORMATION

**DOT (Department of Transportation):**

UN2319, TERPENE HYDROCARBONS, N.O.S., 3, III

**IATA (International Air Transport Association):**

UN2319, TERPENE HYDROCARBONS, N.O.S., 3, III

**IMDG (International Maritime Dangerous Goods):**

UN2319, TERPENE HYDROCARBONS, N.O.S., 3, III, Marine Pollutant (D-LIMONENE) , Flash Point: 46 °C (115 °F)

**Special Notes:** : Materials included in Class 3, Flammable Liquids, No subsidiary, Packing Group III, having a flashpoint greater than 37.8 °C and are packaged in small means of containment (<450 L), may be shipped as Not-Regulated when solely transported by

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road or rail. (Waste excluded) (TDGR 1.33)

**SECTION 15. REGULATORY INFORMATION**

**WHMIS Classification** : B3: Combustible Liquid  
D2B: Toxic Material Causing Other Toxic Effects

**EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Fire Hazard  
Acute Health Hazard

**SARA 302** : This material does not contain any components with a section 302 EHS TPQ.

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

**Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know**

5989-27-5 d-Limonene

**California Prop 65** : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**The components of this product are reported in the following inventories:**

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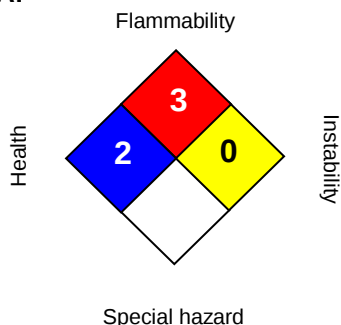
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|       |                                                          |
|-------|----------------------------------------------------------|
| TSCA  | : All substances listed as active on the TSCA inventory  |
| AIIC  | : not determined                                         |
| DSL   | : All components of this product are on the Canadian DSL |
| ENCS  | : not determined                                         |
| KECI  | : not determined                                         |
| PICCS | : not determined                                         |
| IECSC | : not determined                                         |
| NZIoC | : not determined                                         |

#### SECTION 16. OTHER INFORMATION

##### NFPA:



##### HMIS III:

|                 |   |
|-----------------|---|
| HEALTH          | 2 |
| FLAMMABILITY    | 3 |
| PHYSICAL HAZARD | 0 |

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) [SDSNA@univarsolutions.com](mailto:SDSNA@univarsolutions.com).

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**Legacy SDS:** : R0111643

##### Material number:

16177929, 16153034, 16145536, 16153266, 16151009, 16133660, 16122015, 16120696, 16062075, 16056042, 16056014, 16056013, 16056012, 16056011, 16037740, 16013558, 763681, 728284, 554323, 554287, 554254, 554210, 554139, 508584, 504369, 139240,

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104220, 103451, 103445, 103335, 102799, 87227, 87063, 86953, 86747, 70685, 70604, 70040, 69374, 55064, 54193, 20823, 20822

| Key or legend to abbreviations and acronyms used in the safety data sheet |                                                          |       |                                                                                      |
|---------------------------------------------------------------------------|----------------------------------------------------------|-------|--------------------------------------------------------------------------------------|
| ACGIH                                                                     | American Conference of Government Industrial Hygienists  | LD50  | Lethal Dose 50%                                                                      |
| AIIC                                                                      | Australian Inventory of Industrial Chemicals             | LOAEL | Lowest Observed Adverse Effect Level                                                 |
| DSL                                                                       | Canada, Domestic Substances List                         | NFPA  | National Fire Protection Agency                                                      |
| NDSL                                                                      | Canada, Non-Domestic Substances List                     | NIOSH | National Institute for Occupational Safety & Health                                  |
| CNS                                                                       | Central Nervous System                                   | NTP   | National Toxicology Program                                                          |
| CAS                                                                       | Chemical Abstract Service                                | NZIoC | New Zealand Inventory of Chemicals                                                   |
| EC50                                                                      | Effective Concentration                                  | NOAEL | No Observable Adverse Effect Level                                                   |
| EC50                                                                      | Effective Concentration 50%                              | NOEC  | No Observed Effect Concentration                                                     |
| EGEST                                                                     | EOSCA Generic Exposure Scenario Tool                     | OSHA  | Occupational Safety & Health Administration                                          |
| EOSCA                                                                     | European Oilfield Specialty Chemicals Association        | PEL   | Permissible Exposure Limit                                                           |
| EINECS                                                                    | European Inventory of Existing Chemical Substances       | PICCS | Philippines Inventory of Commercial Chemical Substances                              |
| MAK                                                                       | Germany Maximum Concentration Values                     | PRNT  | Presumed Not Toxic                                                                   |
| GHS                                                                       | Globally Harmonized System                               | RCRA  | Resource Conservation Recovery Act                                                   |
| >=                                                                        | Greater Than or Equal To                                 | STEL  | Short-term Exposure Limit                                                            |
| IC50                                                                      | Inhibition Concentration 50%                             | SARA  | Superfund Amendments and Reauthorization Act.                                        |
| IARC                                                                      | International Agency for Research on Cancer              | TLV   | Threshold Limit Value                                                                |
| IECSC                                                                     | Inventory of Existing Chemical Substances in China       | TWA   | Time Weighted Average                                                                |
| ENCS                                                                      | Japan, Inventory of Existing and New Chemical Substances | TSCA  | Toxic Substance Control Act                                                          |
| KECI                                                                      | Korea, Existing Chemical Inventory                       | UVCB  | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <=                                                                        | Less Than or Equal To                                    | WHMIS | Workplace Hazardous Materials Information System                                     |
| LC50                                                                      | Lethal Concentration 50%                                 |       |                                                                                      |