SAFETY DATA SHEET
ANGUS CHEMICAL COMPANY

Product name: HYDROGUARD® I-15, Hydroxylamine

ANGUS CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: HYDROGUARD® I-15, Hydroxylamine

Manufacturer or supplier's details
Company name of supplier: ANGUS CHEMICAL COMPANY
Address: 1500 E. LAKE COOK ROAD
Buffalo Grove IL 60089-6553

Customer Information Number: +1-847-808-3711
E-mail address: NAR_CC@ANGUS.COM
Emergency telephone number: 800-424-9300

Recommended use of the chemical and restrictions on use
Recommended use: Water treatment.
Corrosion inhibitor.
Oxygen scavenger.
For industrial use.
The ANGUS Chemical Company recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact the Customer Information Group (see Section 1 of this data sheet).

2. HAZARDS IDENTIFICATION

GHS Classification
Not a hazardous substance or mixture.
GHS Label elements, including precautionary statements
This product is not hazardous per the Globally Harmonized System of Classification and Labelling (GHS).
Other hazards
None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS
This product is a mixture.

Components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&lt;= 85.0 %</td>
</tr>
<tr>
<td>Isopropyl hydroxylamine</td>
<td>5080-22-8</td>
<td>&gt;= 15.0 %</td>
</tr>
<tr>
<td>Acetone oxime</td>
<td>127-06-0</td>
<td>&lt; 1.0 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

If inhaled
Move person to fresh air; if effects occur, consult a physician.

In case of skin contact
Wash off with plenty of water.

In case of eye contact
Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

If swallowed
If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Protection of first-aiders
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Water fog or fine spray. Carbon dioxide fire extinguishers. Dry chemical fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.
Unsuitable extinguishing media: None known.

Specific hazards during firefighting: Product may produce flash fire, but will not continue to burn. If exposed to intense heat, water in the product may evaporate, leaving a residue. Residue can burn.

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon dioxide, Carbon monoxide, Nitrogen oxides.

Further information: Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Eliminate ignition sources.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Pump with explosion-proof equipment. If available, use foam to smother or suppress. Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Advice on safe handling: Containers, even those that have been emptied, can contain
vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation.

No smoking, open flames or sources of ignition in handling and storage area. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage

Minimize sources of ignition, such as static build-up, heat, spark or flame. Product may become a solid at temperatures below -5°C (23°F) Store in a cool, dry place. Storage tanks should be blanketed with nitrogen. Keep container tightly closed when not in use. Do not store in: Aluminum.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

Engineering measures
Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Personal protective equipment

Respiratory protection
Under intended handling conditions, no respiratory protection should be needed.

Hand protection
Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Chlorinated polyethylene. Examples of acceptable glove barrier materials include: Butyl rubber. Nitrile/butadiene rubber ("nitrile" or "NBR"). Natural rubber ("latex"). Neoprene. Viton. Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
**Eye protection**
Use safety glasses (with side shields).

**Skin and body protection**
Wear clean, body-covering clothing.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Amine</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No test data available</td>
</tr>
<tr>
<td>pH</td>
<td>10.6</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-5 °C (23 °F)</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>&gt;= 98 °C (&gt; = 208 °F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>45.6 °C (114.1 °F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No test data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No test data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No test data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>&lt;= 6.00 mmHg</td>
</tr>
<tr>
<td></td>
<td>(20 °C)</td>
</tr>
<tr>
<td></td>
<td>Method: Literature</td>
</tr>
<tr>
<td></td>
<td>0.24 mmHg</td>
</tr>
<tr>
<td></td>
<td>(20 °C)</td>
</tr>
<tr>
<td></td>
<td>Active ingredient</td>
</tr>
<tr>
<td>Relative Vapor Density (air = 1)</td>
<td>No test data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1 (25 °C)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Miscible with water</td>
</tr>
</tbody>
</table>
Partition coefficient: n-octanol/water
No data available.

Auto-ignition temperature
No test data available

Decomposition temperature
No test data available

Viscosity
Viscosity, dynamic
1 mPa.s (20 °C)
Method: Literature
Approx.

Viscosity, kinematic
No test data available

Explosive properties
No data available.

Oxidizing properties
No data available.

Fire Point
>100
Does not sustain combustion.
Method: ISO 2592

Molecular weight
75.11 g/mol
Method: Literature

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity
No dangerous reaction known under conditions of normal use.

Chemical stability
Stable under recommended storage conditions. See Storage, Section 7.
Unstable at elevated temperatures.

Possibility of hazardous reactions
Polymerization will not occur.

Conditions to avoid
Avoid temperatures above 40 °C
Avoid temperatures below -5 °C
Generation of gas during decomposition can cause pressure in closed systems.
Active ingredient decomposes at elevated temperatures.
Avoid direct sunlight or ultraviolet sources.
Avoid contact with air (oxygen).

Incompatible materials
Avoid contact with oxidizing materials.
Avoid contact with metals such as: Iron.
Product name: HYDROGUARD® I-15, Hydroxylamine

Issue Date: 11/02/2017

Avoid contact with:
- Air.
- Avoid unintended contact with:
  - Oxygen.
  - Free radical sources.
  - Avoid contact with absorbent materials such as:
    - Clay-based absorbents.

Hazardous decomposition products
- Decomposition products depend upon temperature, air supply and the presence of other materials.
- Decomposition products can include and are not limited to:
  - Carbon dioxide.
  - Carbon monoxide.
  - Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Product:

- Acute oral toxicity
  - Remarks: Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Low toxicity if swallowed.
  - LD50 (Rat): > 2,000 mg/kg
  - Assessment: The substance or mixture has no acute oral toxicity

- Acute inhalation toxicity
  - Remarks: Vapors are primarily water; single exposure is not likely to be hazardous.
  - Remarks: The LC50 has not been determined.

- Acute dermal toxicity
  - Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
  - LD50 (Rat, male and female): > 2,000 mg/kg
  - Assessment: The substance or mixture has no acute dermal toxicity

Components:

- Isopropyl hydroxylamine
  - Acute oral toxicity
    - LD50 (Rat, male and female): 2,189 mg/kg
  - Acute inhalation toxicity
    - Remarks: The LC50 has not been determined.
  - Acute dermal toxicity
    - LD50 (Rat, male and female): > 2,000 mg/kg
    - Symptoms: No deaths occurred at this concentration.
    - Assessment: The substance or mixture has no acute dermal toxicity
Skin corrosion/irritation

Product:
Remarks: Prolonged contact may cause slight skin irritation with local redness.

Components:
Isopropyl hydroxylamine

Result: No skin irritation
Remarks: Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

Product:
Remarks: May cause slight temporary eye irritation.
Corneal injury is unlikely.

Components:
Isopropyl hydroxylamine

Result: No eye irritation
Remarks: May cause moderate eye irritation.
May cause slight corneal injury.

Respiratory or skin sensitization

Product:
Remarks: For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks: For respiratory sensitization:
No relevant information found.

Components:
Isopropyl hydroxylamine

Remarks: Did not demonstrate the potential for contact allergy in mice.

Remarks: For respiratory sensitization:
No relevant data found.

Carcinogenicity

Product:
The minor component acetone oxime has caused an increase in benign liver tumors in rats when given in the drinking water for 18 months at a toxic dose level.

Components:
Isopropyl hydroxylamine

No relevant data found.
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 identified as a carcinogen or potential carcinogen by OSHA.

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.

Teratogenicity

Product
No relevant data found.

Components:
Isopropyl hydroxylamine
No relevant data found.

Mutagenicity

Product
Animal genetic toxicity studies were negative.
In vitro genetic toxicity studies were predominantly negative.

Components:
Isopropyl hydroxylamine
Animal genetic toxicity studies were negative.
In vitro genetic toxicity studies were predominantly negative.

Reproductive toxicity

Product:
No relevant data found.

Components:
Isopropyl hydroxylamine
No relevant data found.

STOT - single exposure

Product:
Assessment: Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Components:
Isopropyl hydroxylamine
Assessment: Evaluation of available data suggests that this material is not an STOT-SE toxicant.
Repeated dose toxicity

**Product:**
Remarks: No relevant data found.

**Components:**
*Isopropyl hydroxylamine*
Remarks: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Aspiration toxicity

**Product:**
Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

**Components:**
*Isopropyl hydroxylamine*
Based on physical properties, not likely to be an aspiration hazard.

### 12. ECOLOGICAL INFORMATION

Ecotoxicity

**Components:**
*Isopropyl hydroxylamine*

**Toxicity to fish**
Remarks: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

- **LC50** (Oncorhynchus mykiss (rainbow trout)): 465 mg/l
  Exposure time: 96.0 h
  Test Type: static test

- **LC50** (Leuciscus idus (Golden orfe)): 510 mg/l
  Exposure time: 96.0 h

**Toxicity to daphnia and other aquatic invertebrates**

- **EC50** (Daphnia magna (Water flea)): 201.00 mg/l
  Exposure time: 48.0 h
  Test Type: semi-static test

- **EC50** (copepod Acartia tonsa): 1.40 mg/l
  Exposure time: 48.0 h
  Test Type: static test

**Toxicity to algae**

- **ErC50** (Skeletonema costatum): 32 mg/l
  End point: Growth rate inhibition
  Exposure time: 72 h
  Test Type: static test

**Toxicity to bacteria**

- **EC50** (Bacteria): 130 mg/l
Persistence and degradability

Components:
Isopropyl hydroxylamine

Biodegradability

Result: Not readily biodegradable.
Remarks: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Biodegradation: 40 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Fail

ThOD

2.560 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Rate constant: Degradation half life: 0.13 d
Method: Estimated.

Bioaccumulative potential

Product:
Partition coefficient: n-octanol/water
Remarks: No data available.

Components:
Isopropyl hydroxylamine

Partition coefficient: n-octanol/water
log Pow: -0.574
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Components:
Isopropyl hydroxylamine

Distribution among environmental compartments
Koc: 11
Method: Measured
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).
### 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). |

**Components:**

| Isopropyl hydroxylamine | Remarks: no data available |

### 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

| Waste from residues | DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. Landfill. ANGUS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. |

### 14. TRANSPORT INFORMATION

**International Regulation**

| IATA-DGR | Not regulated as a dangerous good |
| IMDG-Code | Not regulated as a dangerous good |
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

49 CFR (DOT) – NON BULK
Not regulated as a dangerous good

49 CFR (DOT) - BULK

<table>
<thead>
<tr>
<th>UN/ID/NA number</th>
<th>3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-NITROPROPANE)</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Labels</td>
<td>Class 9 - Miscellaneous Dangerous Goods</td>
</tr>
<tr>
<td>ERG Code</td>
<td>171</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>no</td>
</tr>
</tbody>
</table>

Reportable Quantity: 2-NITROPROPANE

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazards
This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Nitropropane</td>
<td>79-46-9</td>
<td>10</td>
</tr>
</tbody>
</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards
This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

SARA 302
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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 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). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (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 SOCMI Intermediate or Final VOC’s (40 CFR 60.469).

US State Regulations

Massachusetts Right To Know
Massachusetts Right to Know List of Chemicals and Hazard Classifications

<table>
<thead>
<tr>
<th>Cas No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-46-9</td>
<td>2-Nitropropane</td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know
The following chemicals are listed because of the additional requirements of Pennsylvania law:

<table>
<thead>
<tr>
<th>Cas No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>5080-22-8</td>
<td>Isopropyl hydroxylamine</td>
</tr>
<tr>
<td>79-46-9</td>
<td>2-Nitropropane</td>
</tr>
</tbody>
</table>

New Jersey Right To Know
The following chemicals are listed because of the additional requirements of New Jersey law:

<table>
<thead>
<tr>
<th>Cas No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>Water</td>
</tr>
<tr>
<td>5080-22-8</td>
<td>Isopropyl hydroxylamine</td>
</tr>
</tbody>
</table>

California Prop. 65
WARNING! This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>Cas No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-46-9</td>
<td>2-Nitropropane</td>
</tr>
</tbody>
</table>

The components of this product are reported in the following inventories:
United States TSCA Inventory
All Components OK
16. OTHER INFORMATION

Further information

**NFPA:**

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Health</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Special hazard.

**HMIS III:**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABILITY</td>
<td>0</td>
</tr>
<tr>
<td>PHYSICAL HAZARD</td>
<td>0</td>
</tr>
</tbody>
</table>

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

Revision Date: 11/02/2017
Version: 0.0
Identification Number: 000040000151

US / EN

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Full text of other abbreviations**

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying
Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods