1. IDENTIFICATION

Product identifier
Product Name: Ortho-Dichlorobenzene

Other means of identification
Product Code: 4930
UN/ID no.: UN1591
Synonyms: 1,2-dichlorobenzene: O-Dichlorobenzene: DCB

Recommended use of the chemical and restrictions on use
Recommended Use: Laboratory chemicals.
Uses advised against: No information available

Details of the supplier of the safety data sheet
Manufacturer Address:
Harrell Industries, Inc.
2495 Commerce Drive
Rock Hill, SC 29730

www.harrellindustries.com

Emergency telephone number
Company Phone Number: 803-327-6335
Fax Number: 803-327-7808
24 Hour Emergency Phone Number: (800) 633-6335 (PERS)
Emergency Telephone: (800) 633-8253 (PERS)

2. HAZARDS IDENTIFICATION

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th></th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

Label elements

Emergency Overview

Warning

Hazard statements
Combustible liquid
Harmful if swallowed
Causes skin irritation
May cause an allergic skin reaction
Causes serious eye irritation
May cause respiratory irritation
Very toxic to aquatic life with long lasting effects
Precautionary Statements - Prevention
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Avoid breathing dust/fume/gas/mist/vapors/spray
Wash skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves/protective clothing/eye protection/face protection
Avoid release to the environment

Precautionary Statements - Response
If SWALLOWED, call a POISON CENTER or doctor/physician.
IF ON SKIN: Wash with plenty of soap and water
IF INHALED: Remove victim to fresh air and keep at rest in a position 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 eye irritation persists: Get medical advice/attention
Take off contaminated clothing and wash before reuse.
Vapors cause pain and irritation to eye. Splashes may cause severe irritation and possible eye damage.
Skin contact causes irritations and possibly burns if contact is repeated or prolonged. May be absorbed through the skin.
Causes irritation to the respiratory tract. Can cause headache, nausea, swelling around the eyes, runny nose, loss of appetite and weight loss. Higher concentrations may cause drowsiness, central nervous system depression, kidney and liver damage, unconsciousness, and death.
Toxic! A liver and kidney poison. May cause systematic poisoning with symptoms parallel to inhalation. May be an aspiration hazard if swallowed.
Flash point: 66°C (151°F) CC Autoignition temperature: 648°C (1198°F). Flammable limits in air % by volume: lel: 2.2;uel: 9.2
Combustible
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable

Other Information
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS
4. FIRST AID MEASURES

**Description of first aid measures**

**General advice**
Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

**Eye contact**
Immediately flush eyes with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention immediately.

**Skin contact**
Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Inhalation**
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

**Ingestion**
Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Most important symptoms and effects, both acute and delayed**

**Symptoms**
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians**
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

- **Small Fire**
  Water spray, dry chemical, alcohol foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

- **Large Fire**
  Water spray, dry chemical, alcohol foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

**Unsuitable extinguishing media**
Caution: Use of water spray when fighting fire may be inefficient.

**Specific hazards arising from the chemical**
Carbon oxides, hydrogen chloride gas.

**Explosion data**
- **Sensitivity to Mechanical Impact** Above flash point, vapor-air mixtures are explosive within flammable limits noted above.
- **Sensitivity to Static Discharge** None.

**Protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Personal precautions, protective equipment and emergency procedures

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Methods for cleaning up
Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Light sensitive: Storage class (TRGS 510): Non-Combustible, acute toxic Cat3/toxic hazardous materials or hazardous materials causing chronic effects.

Incompatible materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>STEL: 50 ppm</td>
<td>(vacated) Ceiling: 50 ppm</td>
<td></td>
</tr>
<tr>
<td>95-50-1</td>
<td>TWA: 25 ppm</td>
<td>(vacated) Ceiling: 300 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceiling: 50 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceiling: 300 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDLH: 200 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the work day.

Individual protection measures, such as personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full Contact: Material: Nitrile rubber, Minimum
layer thickness: 0.11 mm Break through time: 480 min Material tested: Dematril (R) (KCL 740 Aldrich Z677272, Size M). Splash contact: Material Nitrile rubber. Minimum Layer thickness: 0.11 mm Break through time: 480 min Material tested Dermatril (R) (KCL 740/Aldrich Z677272, Size M). data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0) 6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety office familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. Complete suit protecting against chemicals, Flame retardant protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100(US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear, colorless to yellow liquid</td>
<td>Odor Pleasant</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td>Odor threshold</td>
</tr>
<tr>
<td>Odor</td>
<td>Pleasant</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>Values</td>
<td>Remarks • Method</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>-17.6 °C / 0 °F</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>180 °C / 356 °F</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>1.2 @ 20C (68F)</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>1.30 @ 20C/4C</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>Practically insoluble in water.</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

Other Information

<table>
<thead>
<tr>
<th>Other Information</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>VOC Content (%)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY
Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
Heat, flames, ignition sources and incompatibles.

Incompatible materials

Hazardous Decomposition Products
May emit oxides or carbon and hydrogen chloride gas when heated to decomposition. May produce carbon monoxide, carbon dioxide, and hydrogen chloride when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>1516 mg/kg (Rat)</td>
<td>&gt; 10 g/kg (Rabbit)</td>
<td>8.15 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>-</td>
<td>Group 3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>95-50-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Numerical measures of toxicity - Product Information

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>91.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.2: 96 h</td>
<td>8.23 - 10.9: 96 h Pimephales promelas mg/L LC50 flow-through 5.8: 96 h Pimephales promelas mg/L LC50 static 42.6 - 80.4: 96 h Pimephales promelas mg/L LC50 static 5.2: 96 h Brachydaniro rerio mg/L LC50 flow-through 4.8 - 6.6: 96 h Lepomis macrochirus mg/L LC50 static 1.44 - 1.73: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 1.7: 24 h Daphnia magna mg/L EC50 0.74: 48 h Daphnia magna mg/L EC50 Static</td>
<td></td>
</tr>
<tr>
<td>95-50-1</td>
<td>subcapitata mg/L EC50 static 61.2 - 181: 72 h</td>
<td>8.23 - 10.9: 96 h Pimephales promelas mg/L LC50 flow-through 5.8: 96 h Pimephales promelas mg/L LC50 static 42.6 - 80.4: 96 h Pimephales promelas mg/L LC50 static 5.2: 96 h Brachydaniro rerio mg/L LC50 flow-through 4.8 - 6.6: 96 h Lepomis macrochirus mg/L LC50 static 1.44 - 1.73: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 1.7: 24 h Daphnia magna mg/L EC50 0.74: 48 h Daphnia magna mg/L EC50 Static</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability

Bioaccumulation

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>3.43</td>
</tr>
<tr>
<td>95-50-1</td>
<td></td>
</tr>
</tbody>
</table>
Other adverse effects: No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes: Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging: Do not reuse container.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>RCRA</th>
<th>RCRA - Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>U070</td>
<td>Included in waste streams: F002, F039, K042</td>
<td>-</td>
<td>U070</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene</td>
<td>Category II - Semi-volatiles</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

Regulated
- UN/ID no.: UN1591
- Proper shipping name: O-Dichlorobenzene
- Hazard Class: 6.1
- Packing Group: III
- Reportable Quantity (RQ): 20L

TDG

Regulated
- UN/ID no.: UN1591
- Proper shipping name: ORTHO-DICHLOROBENZENE
- Hazard Class: 6.1
- Packing Group: III

ICAO (air)

Regulated
- UN/ID no.: UN1591
- Proper shipping name: Ortho-Dichlorobenzene
- Hazard Class: 6.1
- Packing Group: III

IATA

Regulated
- UN/ID no.: UN1591
- Proper shipping name: Ortho-Dichlorobenzene
- Hazard Class: 6.1
- Packing Group: III

IMDG

Regulated
- UN/ID no.: UN1591
- Proper shipping name: Ortho-Dichlorobenzene
- Hazard Class: 6.1
- Packing Group: III

15. REGULATORY INFORMATION

International Inventories

- TSCA: Complies
- DSL/NDSL: Complies
- EINECS/ELINCS: Complies
- ENCS: Complies
- ENCC: Complies
- IECS: Complies
- KECL: Complies
- PICCS: Complies
- AICS: Complies
Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECS - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene - 95-50-1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute health hazard: Yes
- Chronic Health Hazard: Yes
- Fire hazard: Yes
- Sudden release of pressure hazard: No
- Reactive Hazard: No

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene 95-50-1</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene 95-50-1</td>
<td>100 lb</td>
<td>-</td>
<td>RQ 100 lb final RQ</td>
</tr>
</tbody>
</table>

US State Regulations
California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations
This product may contain substances regulated by state right-to-know regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Dichlorobenzene 95-50-1</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA Health hazards 2 Flammability 2 Instability 0 Physical and Chemical Properties -
HMIS Health hazards 2* Flammability 2 Physical hazards 1 Personal protection X
Chronic Hazard Star Legend * = Chronic Health Hazard
Issue Date 09-Nov-2015
Revision Date 10-Nov-2015

Disclaimer
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.

End of Safety Data Sheet