1 Identification

- **Product identifier**
  - Trade name: Clearlink 1000

- **Application of the substance / the preparation**
  - Industrial use in blending and packaging.
  - Professional use in coating application.
  - Not for consumer use.

- **Details of the supplier of the safety data sheet** Regulatory Department
  - **Manufacturer/Supplier:**
    - Dorf Ketal Chemicals LLC
    - 11200 Westheimer Road
    - Suite 400
    - Houston, Texas 77042
    - Phone: +1 713 343 3477
    - Fax: +1 832 649 7615
    - Email: ehss@dorfketal.com

- **Information department:** Regulatory Manager

- **Emergency telephone number:**
  - For Chemical Emergency ONLY (spill, leak, fire, exposure or accident) call Chemtrec at +1 (703) 527 3887 or Chemtrec India at 000-800-100-7141. DORF KETAL Emergency Control Room +91 22–65271001.

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Acute Tox. 3 H301 Toxic if swallowed.
  - Skin Corr. 1A H314 Causes severe skin burns and eye damage.
  - Aquatic Acute 1 H400 Very toxic to aquatic life.
  - Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.
  - Acute Tox. 4 H312 Harmful in contact with skin.
  - Skin Sens. 1 H317 May cause an allergic skin reaction.

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

- **Label elements**

- **GHS label elements**
  - The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**

  - GHS05
  - GHS06
  - GHS09

(Contd. on page 2)
Trade name: Clearlink 1000

· Signal word Danger

· Hazard-determining components of labeling:
  4,4′-methylenebis(N-secbutylcyclohexanamine)

· Hazard statements
  Toxic if swallowed.
  Harmful in contact with skin.
  Causes severe skin burns and eye damage.
  May cause an allergic skin reaction.
  Very toxic to aquatic life with long lasting effects.

· Precautionary statements
  If medical advice is needed, have product container or label at hand.
  Keep out of reach of children.
  Read label before use.
  Do not breathe dust/fume/gas/mist/vapours/spray.
  IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
  IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 3
    Fire = 1
    Reactivity = 0

· HMIS-ratings (scale 0 - 4)

  HEALTH 3
  FIRE 1
  REACTIVITY 0

· 3 Composition/information on ingredients

· Chemical characterization: Substances

  · Dangerous components:
    154279-60-4 4,4′-methylenebis(N-secbutylcyclohexanamine)  > 60%
    Acute Tox. 3, H301; Skin Corr. 1A, H314; Eye Dam. 1, H318; Aquatic Acute 1, H400;
    Aquatic Chronic 1, H410; Acute Tox. 4, H312; Skin Sens. 1, H317
4 First-aid measures

- **Description of first aid measures**
  - **General information:**
    - Take affected persons out into the fresh air.
    - Do not leave affected persons unattended.
  - **Inhalation:**
    - In case of unconsciousness place patient stably in side position for transportation.
    - Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
  - **Skin Contact:**
    - Immediately rinse with water.
    - Remove contaminated clothing and shoes.
    - Wash clothing before reuse.
    - Clean shoes thoroughly before reuse.
    - If skin irritation continues, consult a doctor.
  - **Eye Contact:**
    - Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.
    - Rinse opened eye for several minutes under running water. Then consult a doctor.
    - Remove contact lenses if worn, if possible.
  - **Ingestion:**
    - Do not induce vomiting; immediately call for medical help.
    - Rinse out mouth and then drink plenty of water.
  - **Most important symptoms and effects, both acute and delayed**
  - Causes severe burns to skin and eyes.
  - Allergic reactions
  - **Indication of any immediate medical attention and special treatment needed**
  - No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media** In case of fire use the following suitable extinguishing agent.
- **Suitable extinguishing agents:**
  - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
  - In case of fire, the following can be released:
    - Carbon monoxide (CO)
    - Nitrogen oxides (NOx)
    - Carbon dioxide
- **Advice for firefighters**
- **Protective equipment:**
  - Wear self-contained respiratory protective device.
Trade name: Clearlink 1000

Wear fully protective suit.

(Contd. of page 3)

* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Wear protective clothing.
  - Keep away from ignition sources
  - Ensure adequate ventilation
  - Wear protective equipment. Keep unprotected persons away.
  - Use respiratory protective device against the effects of fumes/dust/aerosol.

- **Environmental precautions:**
  - Do not allow product to reach sewage system or any water course.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**
  - Stop leak if without risk.
  - Move containers from spill area.
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Use neutralizing agent.
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.

* 7 Handling and storage

- **Handling:**
  - **Precautions for safe handling**
    - Put on appropriate personal protective equipment.
    - Do not ingest.
    - Avoid contact with eyes, skin and clothing.
    - Avoid breathing vapour or mist.
    - Ensure good ventilation/exhaustion at the workplace.

- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.

- **Conditions for safe storage, including any incompatibilities**

- **Requirements to be met by storerooms and receptacles:** Store in a cool location.

- **Further information about storage conditions:**
  - Store in cool, dry conditions in well sealed receptacles.
  - Keep receptacle tightly sealed.

- **Specific end use(s)** No further relevant information available.
8 Exposure controls/personal protection

- Control parameters
  - Components with limit values that require monitoring at the workplace:
    The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
  - Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls
- Personal protective equipment:
  - General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.
  - Breathing equipment:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
    Not required.
  - Protection of hands:
    Protective gloves
    The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  - Material of gloves:
    The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
  - Penetration time of glove material:
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - Eye protection:
    Tightly sealed goggles
9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
  - **Appearance:**
    - Form: Liquid
    - Color: Colorless
    - Odor: Amine-like
  - **Odour threshold:** No data available.
- **pH-value:** 10.7
- **Change in condition**
  - Melting point/Melting range: -21 to 4 °C (-6 to 39 °F)
  - Boiling point/Boiling range: 322 °C (612 °F)
- **Flash point:** 176 °C (349 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Decomposition temperature:** 200 °C (392 °F)
- **Auto ignition temperature**
  - Product is not selfigniting.
- **Explosion limits:**
  - Lower: No data available.
  - Upper: No data available
- **Oxidizing properties**
  - No data available.
- **Vapor pressure at 25 °C (77 °F):** 0.00113 Pa
- **Relative density at 20 °C (68 °F):** 0.9018 g/cm³ (7.526 lbs/gal)
- **Vapour density**
  - Not applicable.
- **Evaporation rate**
  - Not applicable.
- **Solubility**
  - Water at 23 °C (73 °F): 131 mg/L
- **Partition coefficient (n-octanol/water):** 1.31 log KOW
- **Viscosity:**
  - Dynamic: Not applicable.
  - Kinematic at 38 °C (100 °F): 36.4 cSt (ASTM D 445)

10 Stability and reactivity

- **Reactivity** Under normal conditions of storage and use, hazardous reactions will not occur.
**Trade name:** Clearlink 1000

* Chemical stability  The product is stable.
* Thermal decomposition / **conditions to be avoided:** No decomposition if used according to specifications.
* Possibility of hazardous reactions  No dangerous reactions known.
* Conditions to avoid  No further relevant information available.
* Incompatible materials:  Oxidizing material
* Hazardous decomposition products:  Under normal conditions of storage and use, hazardous decomposition products should not be produced

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**11 Toxicological information**

* Information on toxicological effects
  * Acute toxicity:

<table>
<thead>
<tr>
<th>154279–60–4 4,4′-methylenebis(N-secbutylcyclohexanamine)</th>
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</thead>
<tbody>
<tr>
<td><strong>LD/LC50 values that are relevant for classification:</strong></td>
</tr>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Dermal</td>
</tr>
</tbody>
</table>

* Primary irritant effect:
  * on the skin:  Strong caustic effect on skin and mucous membranes.
  * on the eye:  Strong caustic effect.
  * Sensitization:  Sensitization possible through skin contact.

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**12 Ecological information**

* Toxicity
  * Aquatic toxicity:
    This substance is classified as hazardous to the aquatic environment to hazard class aquatic acute 1 (H400) and aquatic chronic 1 (H410).

<table>
<thead>
<tr>
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<tr>
<td><strong>EC 50</strong></td>
</tr>
<tr>
<td><strong>LC 50</strong></td>
</tr>
</tbody>
</table>

* Persistence and degradability  No further relevant information available.
* Behavior in environmental systems:
  * Bioaccumulative potential  No further relevant information available.
  * Mobility in soil  No further relevant information available.
* Ecotoxical effects:
  * Remark:  Very toxic for fish
* Additional ecological information:
* General notes:
  Water hazard class 2 (Self-assessment): hazardous for water

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(Contd. on page 8)
Do not allow product to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Very toxic for aquatic organisms

**Results of PBT and vPvB assessment**
- **PBT**: Persistent as non biodegradable in water. Not bioaccumulative. Toxic to the aquatic environment
- **vPvB**: Very persistent as non biodegradable in water. Very bioaccumulative.

**Other adverse effects** No further relevant information available.

### 13 Disposal considerations

**Waste treatment methods**
The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

**UN-Number**
DOT, ADR, IMDG, IATA  UN2922

**UN proper shipping name**
- **DOT**
2922 Corrosive liquids, toxic, n.o.s.
- **ADR**
ENVIRONMENTALLY HAZARDOUS
- **IMDG**
CORROSIVE LIQUID, TOXIC, N.O.S.(4,4'-methylenebis(N-sec-butylcyclohexamine)), MARINE POLLUTANT
- **IATA**
CORROSIVE LIQUID, TOXIC, N.O.S.(4,4'-methylenebis(N-sec-butylcyclohexamine))
**Trade name:** Clearlink 1000

<table>
<thead>
<tr>
<th><strong>Transport hazard class(es)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT</strong></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="DOT CLASS 8" /></td>
<td>8 Corrosive substances.</td>
</tr>
<tr>
<td><img src="image" alt="DOT LABEL 6.1" /></td>
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</tr>
<tr>
<td><strong>Packing group</strong></td>
<td>II</td>
</tr>
<tr>
<td><strong>DOT, ADR, IMDG, IATA</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Environmental hazards:** |  |
| **Marine pollutant:** | Yes  |
| ![Symbol (fish and tree)](image) | Symbol (fish and tree)  |

| **Special marking (ADR):** |  |
| ![Symbol (fish and tree)](image) | Symbol (fish and tree)  |

| **Special precautions for user** | Warning: Corrosive substances  |

| **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** | Not applicable.  |

| **Transport/Additional information:** |  |
| **DOT** |  |
| **Remarks:** | Special marking with the symbol (fish and tree).  |
Trade name: Clearlink 1000

UN "Model Regulation": UN2922, Corrosive liquids, toxic, n.o.s.(4,4'-methylenebis(N-sec-butylcyclohexamine)), ENVIRONMENTALLY HAZARDOUS, 8 (6.1), II

15 Regulatory information

- Sara
  - Section 355 (extremely hazardous substances): None of the ingredients are listed.
  - Section 313 (Specific toxic chemical listings): None of the ingredients is listed.
  - TSCA (Toxic Substances Control Act): All ingredients are listed.
  - Proposition 65
    - Chemicals known to cause cancer: None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.
    - Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.
    - Chemicals known to cause developmental toxicity: None of the ingredients are listed.

- Carcinogenic categories
  - EPA (Environmental Protection Agency) None of the ingredients are listed.
  - TLV (Threshold Limit Value established by ACGIH) None of the ingredients are listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients are listed.
  - OSHA-Ca (Occupational Safety & Health Administration) None of the ingredients are listed.
  - Chemical safety assessment: A Chemical Safety Assessment has not been carried out.
16 Other information

File Name: Clearlink 1000 SDS US en SEP-23-2013

Contact: Regulatory Manager

Abbreviations and acronyms:
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- IOELV: Indicative Occupational Exposure Limit Values

Disclaimer:
The data and recommendations presented in this data sheet concerning the use of our product and the materials contain in are believed to be accurate and are based on information which is considered reliable as of the date hereof. However, the customer should determine the suitability of much material for his purpose before adopting them on a commercial scale. Since the use our product by others is beyond our control, no guarantee, express or implied, is made and no responsibility assumed for the use of this material or the results to be obtained there from. Information on this document is furnished for the purpose of compliance with Government Health and Safety Regulations and shall not be used for any other purposes. Moreover, the recommendations contained in this Safety Data Sheet are not to be constructed as a license to operate under, or a recommendation to infringe, any existing patents, nor should they be confused with state, municipal or insurance requirements, or with national safety codes.