1. Identification

Product identifier          DUNAPOL™ AD 3140
Other means of identification
SDS number                  Version 1
Product code                202009
Recommended use             Industrial use.
Recommended restrictions    None known.
Manufacturer/Importer/Supplier/Distributor information
Manufacturer/Supplier       DUNA-USA Inc.
Company name                DUNA-USA Inc.
Address                     4210 FM 1405 Baytown, TX, 77523 United States
Telephone number            281-383-3862
e-mail                      franco.sala@dunagroup.com
Contact person              Franco Sala
Emergency telephone number  800-424-9300

2. Hazard(s) identification

Physical hazards            Not classified.
Health hazards              Acute toxicity, inhalation          Category 4
                             Skin corrosion/irritation        Category 2
                             Serious eye damage/eye irritation Category 2A
                             Sensitization, respiratory       Category 1
                             Sensitization, skin             Category 1
                             Carcinogenicity                 Category 2
                             Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
                             Specific target organ toxicity, repeated Exposure Category 2 (respiratory system)

OSHA defined hazards        Not classified.
Label elements

Signal word                 Danger
Hazard statement            Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. Suspected of causing cancer. May cause respiratory irritation. May cause damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.
Precautionary statement

Prevention                  Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate
ventilation wear respiratory protection. Wash thoroughly after handling. Contaminated
work clothing must not be allowed out of the workplace. Use only outdoors or in a well-
ventilated area.

Response
If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of
water. If skin irritation or rash occurs: Get medical advice/attention. Take off
contaminated clothing and wash before reuse. 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. If inhaled: If breathing is difficult,
remove person to fresh air and keep comfortable for breathing. If experiencing
respiratory symptoms: Call a poison center/doctor.

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

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

Hazard(s) not otherwise
classified (HNOC)
None known.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polytetramethylene-MDI-Copolymer</td>
<td>9048-58-2</td>
<td>50-75</td>
</tr>
<tr>
<td>Methylene diphenyl diisocyanate</td>
<td>101-68-8</td>
<td>10-20</td>
</tr>
<tr>
<td>O-(p-isocyanatobenzyl)phenyl Isocyanate</td>
<td>5873-54-1</td>
<td>5-10</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate</td>
<td>9016-87-9</td>
<td>5-10</td>
</tr>
<tr>
<td>Tripropylene glycol-Diphenyl methane diisocyanate</td>
<td>52747-01-0</td>
<td>1-5</td>
</tr>
</tbody>
</table>

Composition comments
All concentrations are in percent by weight unless ingredient is a gas. Gas
concentrations are in percent by volume.

4. First-aid measures

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or
artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance.
Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other
proper respiratory medical device. Get medical attention immediately.

Skin contact
Immediately flush skin with plenty of water. Take off contaminated clothing and wash before
reuse. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along
these instructions.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if
present and easy to do. Get medical attention.

Ingestion
Immediately rinse mouth and drink plenty of water. Keep person under observation. If person
becomes uncomfortable take to hospital along with these instructions.

Most important
symptoms/effects,
acute and delayed
Irritating to eyes, respiratory system and skin. Sensitization. Be aware that symptoms of lung
edema (shortness of breath) may develop up to 24 hours after exposure.

Indication of immediate
medical attention and
special treatment needed
Treat symptomatically. Symptoms may be delayed.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to
protect themselves.
5. Fire-fighting measures

Suitable extinguishing media
- Foam
- Dry powder
- Carbon dioxide (CO2)

Unsuitable extinguishing media
- Water jet

Specific hazards arising from the chemical
- During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
- Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
- Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions
- Cool containers exposed to flames with water until well after the fire is out. Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
- This product is not flammable.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
- Ensure adequate ventilation. Avoid inhalation of vapors and contact with skin and eyes. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up
- Absorb spillage with non-combustible, absorbent material. Collect in marked containers and deliver to approved depot. Following product recovery, flush area with water.
- For waste disposal, see Section 13 of the SDS.

Environmental precautions
- Avoid release to the environment.

7. Handling and storage

Precautions for safe handling
- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Should be handled in closed systems, if possible. Persons susceptible for allergic reactions should not handle this product. Mechanical ventilation or local exhaust ventilation is required. Do not get in eyes, on skin, on clothing. Do not breathe mist or vapor.
- Observe good industrial hygiene practices. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Work practice should minimize contact. Change contaminated clothing. Keep the workplace clean. Technical aids: Use disposable equipment (rags, brushes, spatulas, putty knives, etc.), if possible. Wear appropriate personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities
- Store locked up. Store in a cool and well-ventilated place. Keep container tightly closed.
### 8. Exposure controls/personal protection

#### Occupational exposure limits

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene diphenyl diisocyanate (CAS 101-68-8)</td>
<td>Ceiling</td>
<td>0.2 mg/m³</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate (CAS 9016-87-9)</td>
<td>Ceiling</td>
<td>0.2 mg/m³</td>
</tr>
</tbody>
</table>

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene diphenyl diisocyanate (CAS 101-68-8)</td>
<td>TWA</td>
<td>0.005 ppm</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate (CAS 9016-87-9)</td>
<td>TWA</td>
<td>0.005 ppm</td>
</tr>
</tbody>
</table>

**US. NIOSH: Pocket Guide to Chemical Hazards**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene diphenyl diisocyanate (CAS 101-68-8)</td>
<td>Ceiling</td>
<td>0.2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.05 mg/m³</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate (CAS 9016-87-9)</td>
<td>Ceiling</td>
<td>0.2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.05 mg/m³</td>
</tr>
</tbody>
</table>

#### Biological limit values

No biological exposure limits noted for the ingredient(s).

#### Appropriate engineering controls

Mix and prepare in a place with efficient exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors. Provide easy access to water supply and eye wash facilities.

#### Individual protection measures, such as personal protective equipment.

- **Eye/face protection**
  - Wear goggles/face shield.

- **Skin protection**
  - Use disposable gloves protecting against isocyanates along with cotton gloves closest to the skin.

- **Hand protection**
  -
skin. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other
Protection suit must be worn.

Respiratory protection
Self-contained breathing apparatus. Wear NIOSH approved respirator. If respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene
Considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance
- Physical state: Liquid.
- Form: Liquid.
- Color: Amber.
- Odor: Slight.
- Odor threshold: Not available.
- pH: Not applicable.
- Melting point / freezing point: <4°C
- Initial boiling point and boiling range: >200°C
- Flash point: >200°C
- Evaporation rate: Not available.
- Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits
- Flammability limit lower (%): Not available.
- Flammability limit upper (%): Not available.
- Explosive limit lower (%): Not available.
- Explosive limit upper (%): Not available.
- Vapor pressure: <10⁻⁵ mmHg @ 25°C
- Vapor density: Not available.
- Relative density: 1.08 (25 °C)
- Solubility(ies)
  - Solubility (water): Not available.
- Partition coefficient (n-octanol/water): Not available.
- Auto-ignition temp.: >400°C
- Decomposition temp.: Not available.
- Viscosity: 1750 cP (25 °C)
10. Stability and reactivity

Reactivity: Stable at normal conditions.

Chemical stability: The product is stable under normal conditions of use, storage and transport.

Possibility of hazardous reactions: Will not occur.

Conditions to avoid: High temperatures.


11. Toxicological information

Information on likely routes of exposure:

Inhalation: May cause irritation to the respiratory system. Harmful if inhaled. May cause lung damage. Symptoms can be delayed.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

Ingestion: Ingestion may cause irritation and malaise.

Symptoms related to the physical, chemical and toxicological characteristics:

Irritating to eyes, respiratory system and skin. Sensitization. Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure.

Information on toxicological effects:

Acute toxicity: Harmful if inhaled.

Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene diphenyl disocyanate (CAS 101-68-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 2.24 mg/l, 1 Hours</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td></td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Serious eye damage/eye</td>
<td></td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Irritation</td>
<td></td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td></td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled.</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td></td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td></td>
<td>No data available.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td></td>
<td>Suspected of causing cancer.</td>
</tr>
</tbody>
</table>

IARC Monographs. Overall Evaluation of Carcinogenicity

Methylene diphenyl disocyanate (CAS 101-68-8) 3 Not classifiable as to carcinogenicity to humans.
O-(p-isocyanatobenzyl)phenyl Isocyanate (CAS 5873-54-1) 3 Not classifiable as to carcinogenicity to humans.
Polyisocyanate (CAS 9016-87-9) 3 Not classifiable as to carcinogenicity to humans.
Polytetramethylene-MDI-Copolymer (CAS 9048-58-2) 3 Not classifiable as to carcinogenicity to humans.
Tripropylene glycol-Diphenyl methane diisocyanate (CAS 52747-01-0) 3 Not classifiable as to carcinogenicity to humans.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Reproductive toxicity No data available.
Specific target organ toxicity - single exposure May cause respiratory tract irritation.
Specific target organ toxicity - repeated exposure May cause damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.
Aspiration hazard No data available.
Chronic effects May cause damage to organs through prolonged or repeated exposure by inhalation.
Further information None known.

12. Ecological information

Ecotoxicity The environmental hazard of the product is considered to be limited.
Persistence and degradability The product reacts with water to form a solid insoluble reaction product which is non-degradable, according to information available.
Bioaccumulative potential No data available.
Mobility in soil The product is expected to be slowly biodegradable.
Other adverse effects No data available.

13. Disposal considerations

Disposal instructions Dispose of in accordance with local regulations.
Local disposal regulations Dispose of in accordance with local regulations.
Hazardous waste code Not regulated.
Waste from residues / unused products Dispose of in accordance with local regulations. Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.
Contaminated packaging Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT Not regulated as dangerous goods.
IATA Not regulated as dangerous goods.
IMDG Not regulated as dangerous goods.
Transport in bulk according to Not applicable.
Annex II of MARPOL 73/78 and the IBC Code
15. Regulatory information

US federal regulations  This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

OSHA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

- Methylene diphenyl diisocyanate (CAS 101-68-8)  **LISTED**
- Polymethylene polyphenyl isocyanate (CAS 9016-87-9)  **LISTED**
- Polytetramethylene-MDI-Copolymer (CAS 9048-58-2)  **LISTED**

Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Immediate Hazard**
- Yes
**Delayed Hazard**
- Yes
**Fire Hazard**
- No
**Pressure Hazard**
- No
**Reactivity Hazard**
- No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous
Chemical
- Yes

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polytetramethylene-MDI-Copolymer</td>
<td>9048-58-2</td>
<td>50 – 75</td>
</tr>
<tr>
<td>Methylene diphenyl diisocyanate</td>
<td>101-68-8</td>
<td>10 – 20</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate</td>
<td>9016-87-9</td>
<td>5 – 10</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
- Methylene diphenyl diisocyanate (CAS 101-68-8)
- Polymethylene polyphenyl isocyanate (CAS 9016-87-9)
- Polytetramethylene-MDI-Copolymer (CAS 9048-58-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act  Not regulated.
(SDWA)

US state regulations

US. Massachusetts RTK - Substance List
- Methylene diphenyl diisocyanate (CAS 101-68-8)
- Polymethylene polyphenyl isocyanate (CAS 9016-87-9)
- Polytetramethylene-MDI-Copolymer (CAS 9048-58-2)

US. New Jersey Worker and Community Right-to-Know Act
- Methylene diphenyl diisocyanate (CAS 101-68-8)
- O-(p-isocyanatobenzyl)phenyl Isocyanate (CAS 5873-54-1)
- Polymethylene polyphenyl isocyanate (CAS 9016-87-9)
- Polytetramethylene-MDI-Copolymer (CAS 9048-58-2)

US. Pennsylvania Worker and Community Right-to-Know Law
- Methylene diphenyl diisocyanate (CAS 101-68-8)
- Polymethylene polyphenyl isocyanate (CAS 9016-87-9)
- Polytetramethylene-MDI-Copolymer (CAS 9048-58-2)
US. Rhode Island RTK
Methylene diphenyl diisocyanate (CAS 101-68-8)
Polymethylene polyphenyl isocyanate (CAS 9016-87-9)
Polytetramethylene-MDI-Copolymer (CAS 9048-58-2)

US. California Proposition 65
Not Listed.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date: 26-March-2015
Revision date: -
Version #: 01

Further information
HMIS® is a registered trade and service mark of the NPCA.
Hazard Scale: 
0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS® ratings
Health: 2*
Flammability: 1
Physical hazard: 0

NFPA ratings

List of abbreviations
LC50: Lethal Concentration, 50%.

Disclaimer
This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.