SAFETY DATA SHEET

Safety Data Sheet according to Reg. (EC) N. 1907/2006

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name: PARALOID™ DM-55 100% Resin

Product description: Acrylic copolymer

Product Use Description: Coatings product

Supplier: ROHM AND HAAS SOUTH AFRICA (Pty) LTD
A Subsidiary of The Dow Chemical Company
SCHAFER 8
NEW GERMANY, ZN 3610 South Africa

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Local emergency telephone number: 00 32 533 0716

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2. HAZARDS IDENTIFICATION

This product is not hazardous according to EEC Directives 67/548/EEC and 99/45/EC including amendments (2001/60/EC and 2006/8/EC)

May produce an allergic reaction.

May produce an allergic reaction.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>EINECS-No.</th>
<th>Concentration</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>monoalkyl or monoaryl or monoalkylaryl esters of</td>
<td>7534-94-3</td>
<td>231-403-1</td>
<td>1,0 - &lt; 2,5 %</td>
<td>Xi, N R36/37/38, R51/53</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Xi R36/37/38</td>
</tr>
</tbody>
</table>

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Revision Date 19.02.2013
4. FIRST AID MEASURES

**Inhalation:** Move to fresh air.

**Skin contact:** Wash with water and soap as a precaution. If skin irritation persists, call a physician. Wash contaminated clothing before reuse. Do not take clothing home to be laundered.

**Eye contact:** Flush eyes with water as a precaution. If eye irritation persists, consult a specialist.

**Ingestion:** Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

**Notes to physician:** Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

**Suitable extinguishing media:** Use the following extinguishing media when fighting fires involving this material:
- Carbon dioxide (CO2)
- Dry chemical
- Water spray

**Specific hazards during firefighting:** Material as sold is combustible; burns vigorously with intense heat.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus and protective suit.

**Further information:** Use water spray to cool unopened containers. Remain upwind. Avoid breathing smoke.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations.
If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

**Environmental precautions**
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

**Methods for cleaning up**
Floor may be slippery; use care to avoid falling.
Eliminate all ignition sources.
Ventilate the area.
Transfer spilled material to suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Handling
Store in a cool, dry, well ventilated place. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapours/dust. Static charges can accumulate: use bonding and grounding between transfer equipment and receiving containers and for any other operations capable of generating static electricity.

Storage
Storage conditions: Material can burn; limit indoor storage to approved areas equipped with automatic sprinklers. Ground all metal containers during storage and handling.

Further information:
Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)
Exposure limits are listed below, if they exist.

Exposure controls

Engineering measures: Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75 m/sec.) at the point of dust or mist evolution. Refer to the current edition of "Industrial Ventilation: A Manual of Recommended Practice" published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Protective measures: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Safety glasses with side-shields. Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection):
Polyvinyl alcohol VITON Synthetic Rubber (registered Trademark of Dupont Dow Elastomers) Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Rinse and remove gloves immediately after use. Wash hands with soap and water.
**Respiratory protection:** A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator’s use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Granular solid</td>
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<tr>
<td>Colour</td>
<td>yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>Acrylic odor</td>
</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Melting point/range</td>
<td>70.00 °C Softening point</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
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</tr>
<tr>
<td>Flash point</td>
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</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Lower explosion limit</td>
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</tr>
<tr>
<td>Upper explosion limit</td>
<td>not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
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<tr>
<td>Relative vapor density</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
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<tr>
<td>Water solubility</td>
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<tr>
<td>Auto-ignition temperature</td>
<td>393 °C estimated</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Percent volatility</td>
<td>3 % maximum</td>
</tr>
</tbody>
</table>

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

## 10. STABILITY AND REACTIVITY

**Hazardous reactions**

None known. This material is considered stable. However, avoid temperatures above 260C/500F. Thermal decomposition is dependent on time and temperature.

**Materials to avoid**

There are no known materials which are incompatible with this product.

**Hazardous decomposition products**

Thermal decomposition may yield acrylic monomers.

**Polymerisation**

Product will not undergo polymerization.
11. TOXICOLOGICAL INFORMATION

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

No data are available for this material. The information shown is based on profiles of compositionally similar materials.

**Acute oral toxicity**
LD50 rat > 5 000 mg/kg

**Acute dermal toxicity**
LD50 rabbit > 3 000 mg/kg

**Skin irritation**
rabbit slight irritation

**Eye irritation**
rabbit slight irritation

**Component:** monoalkyl or monoaryl or monoalkylaryl esters of acrylic acid

**Acute inhalation toxicity**
The LC50 has not been determined.

**Component:** toluene

**Acute inhalation toxicity**
Vapor concentrations are attainable which could be hazardous on single exposure.
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.
Alcohol consumption and exertion may increase the adverse effects of toluene.
May cause respiratory irritation and central nervous system depression.

**Component:** toluene

**Acute inhalation toxicity**
LC50 rat male and female 4 Hour > 20 mg/l

**Component:** monoalkyl or monoaryl or monoalkylaryl esters of acrylic acid

**Sensitisation**
Did not cause allergic skin reactions when tested in guinea pigs.

**Component:** monoalkyl or monoaryl or monoalkylaryl esters of acrylic acid

**Sensitisation**
For respiratory sensitization:
No relevant data found.

**Component:** toluene

**Sensitisation**
Does not cause skin sensitization.
Did not cause allergic skin reactions when tested in guinea pigs.

**Component:** toluene

**Sensitisation**
For respiratory sensitization:
No relevant data found.

**Component:** monoalkyl or monoaryl or monoalkylaryl esters of acrylic acid

**Subchronic toxicity**
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Bone marrow.

**Component:** monoalkyl or monoaryl or monoalkylaryl esters of acrylic acid

**Carcinogenicity**
No relevant data found.
Component: **monoalkyl or monoaryl or monoaalkylaryl esters of acrylic acid**

**Reproductive toxicity**

Screening studies suggest that this material does not affect reproduction.

Component: **monoalkyl or monoaryl or monoaalkylaryl esters of acrylic acid**

**Teratogenicity**

Screening studies in animals suggest that this material does not affect fetal development.

Component: **monoalkyl or monoaryl or monoaalkylaryl esters of acrylic acid**

**Mutagenicity**

In vitro genetic toxicity studies were negative.

Component: **toluene**

**Subchronic toxicity**

In animals, effects have been reported on the following organs:
- central nervous system (CNS) effects
- Excessive exposure may cause neurologic signs and symptoms.
- Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.
- Intentional misuse by deliberately inhaling toluene may cause nervous system damage, hearing loss, liver and kidney effects and death.

Component: **toluene**

**Carcinogenicity**: Did not cause cancer in laboratory animals.

Component: **toluene**

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

Component: **toluene**

**Teratogenicity**

In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it has caused birth defects in mice when administered orally, but not by inhalation.

Component: **toluene**

**Mutagenicity**

The majority and most reliable of the many genetic toxicity studies on toluene, both in vitro and in animals, indicate that it is not genetically toxic.

### 12. ECOLOGICAL INFORMATION

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

There is no data available for this product.

**monoalkyl or monoaryl or monoaalkylaryl esters of acrylic acid**

**Elimination information (persistence and degradability)**

**Biodegradability**

OECD Test Guideline 310 or Equivalent Readily biodegradable.
- 70%
- Material is expected to be readily biodegradable.

**Ecotoxicity effects**

**Toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

**Toxicity to fish**

semi-static test LC50 Danio rerio (zebra fish) 96 Hour 1,79 mg/l
Toxicity to algae
static test ErC50 Pseudokirchneriella subcapitata (green algae) 96 Hour 2,66 mg/l
Toxicity to aquatic invertebrates
semi-static test EC50 Daphnia magna (Water flea) 48 Hour > 2,57 mg/l

Toluene

Elimination information (persistence and degradability)

Biodegradability
Readily biodegradable. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradability
OECD Test Guideline 301C or Equivalent 100 %

Bioaccumulation
Freshwater fish Measured
Bioconcentration factor (BCF): 13,2 - 90

Ecotoxicity effects

Toxicity to fish
Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Toxicity to fish
semi-static test LC50 Rainbow trout (Oncorhynchus mykiss) 96 Hour OECD Test Guideline 203 or Equivalent yes 5,8 mg/l

Toxicity to algae
EbC50 Pseudokirchneriella subcapitata (green algae) 72 Hour OECD Test Guideline 201 or Equivalent 12,5 mg/l

Toxicity to aquatic invertebrates
static test EC50 Daphnia magna (Water flea) 24 Hour OECD Test Guideline 202 or Equivalent 7 mg/l

Toxic to soil organisms.
LC50 Eisenia fetida (earthworms) 150 - 280 mg/kg

13. DISPOSAL CONSIDERATIONS

Waste Code
The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

European Waste Catalogue (2000/532/EC)
The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.
Disposal
For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:
Not regulated for transport

Classification for SEA transport (IMO-IMDG):
Not regulated for transport

Classification for AIR transport (IATA/ICAO):
Not regulated for transport

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations.

15. REGULATORY INFORMATION

Label
Classification and labeling have been performed according to EU directives 67/548/EEC and 99/45/EC including amendments (2001/60/EC and 2006/8/EC).

Hazard symbol and Indication of danger
This product is not hazardous according to EEC Directives 67/548/EEC and 99/45/EC including amendments (2001/60/EC and 2006/8/EC)

Contains: methyl 2-methylprop-2-enoate
May produce an allergic reaction.

Contains: methyl 2-methylprop-2-enoate
May produce an allergic reaction.

Safety data sheet available on request for professional users.

United States TSCA Inventory (US.TSCA): All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Full text of the R-phrases given in Section 3
R11 Highly flammable.
R36/37/38 Irritating to eyes, respiratory system and skin.
R38 Irritating to skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R63 Possible risk of harm to the unborn child.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

Legend

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>American Conference of Governmental Industrial Hygienists</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAc</td>
<td>Butyl acetate</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit (STEL):</td>
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<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
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<tr>
<td></td>
<td>Bar denotes a revision from prior MSDS.</td>
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</table>

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.