SAFETY DATA SHEET

Methyl Salicylate / Diclofenac Formulation

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
   Trade name: Methyl Salicylate / Diclofenac Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Use of the Substance/Mixture: Veterinary product

1.3 Details of the supplier of the safety data sheet
   Company: MSD
   20 Spartan Road
   1619 Spartan, South Africa
   Telephone: +27119239300
   Telefax: 908-735-1496
   E-mail address of person responsible for the SDS: EHSDATASTEWARD@msd.com

1.4 Emergency telephone number
   1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification (REGULATION (EC) No 1272/2008)
   Specific target organ toxicity - repeated exposure, Category 2
   H373: May cause damage to organs through prolonged or repeated exposure.
   Short-term (acute) aquatic hazard, Category 1
   H400: Very toxic to aquatic life.
   Long-term (chronic) aquatic hazard, Category 1
   H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements
   Labelling (REGULATION (EC) No 1272/2008)
   Hazard pictograms:
   Signal word: Warning
   Hazard statements:
   H373 May cause damage to organs through prolonged or repeated exposure.
   H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements:

Prevention:
P273 Avoid release to the environment.

Response:
P314 Get medical advice/attention if you feel unwell.
P391 Collect spillage.

Hazardous components which must be listed on the label:
Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate

2.3 Other hazards
None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>215-222-5</td>
<td>030-013-00-7</td>
<td>Aquatic Acute; H400; Aquatic Chronic; H410</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M-Factor (Acute aquatic toxicity): 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M-Factor (Chronic aquatic toxicity): 10</td>
<td></td>
</tr>
<tr>
<td>Methyl salicylate</td>
<td>119-36-8</td>
<td>204-317-7</td>
<td></td>
<td>Acute Tox.4; H302</td>
<td>&gt;= 1 - &lt; 10</td>
</tr>
<tr>
<td>Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate</td>
<td>15307-79-6</td>
<td>239-346-4</td>
<td></td>
<td>Acute Tox.3; H301; Skin Irrit.2; H315; Eye Irrit.2; H319; Repir.2; H361d; STOT RE1; H372; Aquatic Chronic2; H411</td>
<td>&gt;= 1 - &lt; 2,5</td>
</tr>
<tr>
<td>(+)-Bornan-2-one</td>
<td>464-49-3</td>
<td>207-355-2</td>
<td></td>
<td>Flam. Sol.2; H228; Acute Tox.3; H301; Acute Tox.3; H331; Eye Irrit.2; H319; STOT SE3; H335; Aquatic Chronic2; H411</td>
<td>&gt;= 1 - &lt; 2,5</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

If inhaled: If inhaled, remove to fresh air. Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks: May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.
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Version 7.1
Revision Date: 23.03.2020
SDS Number: 656973-00010
Date of last issue: 16.09.2019
Date of first issue: 02.05.2016

Hazardous combustion products:
- Carbon oxides
- Chlorine compounds
- Nitrogen oxides (NOx)
- Sodium oxides
- Metal oxides

5.3 Advice for firefighters
Special protective equipment for firefighters:
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.

Specific extinguishing methods:
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Use water spray to cool unopened containers.
- Remove undamaged containers from fire area if it is safe to do so.
- Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions:
- Use personal protective equipment.
- Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions
Environmental precautions:
- Discharge into the environment must be avoided.
- Prevent further leakage or spillage if safe to do so.
- Retain and dispose of contaminated wash water.
- Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up:
- Sweep up or vacuum up spillage and collect in suitable container for disposal.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
- Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections
See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Technical measures:
- See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation:
- Use only with adequate ventilation.

Advice on safe handling:
- Do not get on skin or clothing.
Do not swallow. Avoid contact with eyes. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers: Keep in properly labelled containers. Store in accordance with the particular national regulations.

Advice on common storage: Do not store with the following product types:
- Strong oxidizing agents
- Organic peroxides
- Explosives
- Gases

7.3 Specific end use(s)
Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>TWA OEL-RL (Fumes)</td>
<td>5 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

Further information: Recommended Limit

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate</td>
<td>15307-79-6</td>
<td>TWA</td>
<td>100 µg/m³ (OEB 2)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Further information: Skin

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+)-Bornan-2-one</td>
<td>464-49-3</td>
<td>TWA OEL-RL</td>
<td>2 ppm, 12 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

Further information: Recommended Limit

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>STEL OEL-RL</td>
<td>3 ppm, 18 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:
### Substance name

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl salicylate</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>17.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>285 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>6 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>4 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>213 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>3 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>1 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Acute systemic effects</td>
<td>5 mg/kg bw/day</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>2.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.83 mg/kg bw/day</td>
</tr>
<tr>
<td>(+)-Bornan-2-one</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>17,632 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>10 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>4,348 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>5 mg/kg bw/day</td>
</tr>
</tbody>
</table>

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl salicylate</td>
<td>Fresh water</td>
<td>20 µg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>2 µg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>200 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>140 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>0.33 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0.033 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>0.35 mg/kg</td>
</tr>
<tr>
<td>Petrolatum</td>
<td>Oral (Secondary Poisoning)</td>
<td>9.33 mg/kg food</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>Fresh water</td>
<td>20.6 µg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>6.1 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>100 µg/l</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Engineering measures
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment
Eye protection : Wear the following personal protective equipment:
Safety glasses

Hand protection
Material : Chemical-resistant gloves
Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
Appearance : ointment
Colour : light red
Odour : aromatic
**SAFETY DATA SHEET**

**Methyl Salicylate / Diclofenac Formulation**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not classified as a flammability hazard</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
</tbody>
</table>

**9.2 Other information**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (liquids)</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
<tr>
<td>Particle size</td>
<td>No data available</td>
</tr>
</tbody>
</table>
SECTION 10: Stability and reactivity

10.1 Reactivity
Not classified as a reactivity hazard.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions: Can react with strong oxidizing agents.

10.4 Conditions to avoid
Conditions to avoid: None known.

10.5 Incompatible materials
Materials to avoid: Oxidizing agents

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Information on likely routes of exposure:
Skin contact
Ingestion
Eye contact

Acute toxicity
Not classified based on available information.

Product:
Acute oral toxicity: Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:
Zinc oxide:
Acute oral toxicity: LD50 (Rat): > 5.000 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 5,7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

**Methyl salicylate:**
Acute oral toxicity: LD50 (Rat): 887 mg/kg

**Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:**
Acute oral toxicity: LD50 (Rat): 55 - 240 mg/kg
LD50 (Mouse): 170 - 389 mg/kg
Acute toxicity (other routes of administration):
LD50 (Rat): 97 - 161 mg/kg
Application Route: Intravenous
LD50 (Mouse): 92 - 147 mg/kg
Application Route: Intravenous

**(+)-Bornan-2-one:**
Acute oral toxicity: LD50 (Mouse): > 300 - 2.000 mg/kg
Remarks: Based on data from similar materials
Acute toxicity estimate (Humans): > 50 - 500 mg/kg
Method: Expert judgement
Remarks: Based on data from similar materials
Acute inhalation toxicity: LC50 (Rat): > 0.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Based on data from similar materials
Acute dermal toxicity: LD50 (Rat): > 2.000 mg/kg
Remarks: Based on data from similar materials

**Skin corrosion/irritation**
Not classified based on available information.

**Components:**

**Zinc oxide:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

**Methyl salicylate:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

**Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:**
Result: irritating
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(+)-Bornan-2-one:
Species: Rabbit
Result: No skin irritation
Remarks: Based on data from similar materials

Serious eye damage/eye irritation
Not classified based on available information.

Components:

Zinc oxide:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Methyl salicylate:
Species: Rabbit
Result: No eye irritation

Sodium [2-(2,6-dichlorophenyl)amino]phenyl]acetate:
Result: Mild eye irritation

(+)–Bornan-2-one:
Result: Eye irritation
Remarks: Based on data from similar materials

Respiratory or skin sensitisation

Skin sensitisation
Not classified based on available information.

Respiratory sensitisation
Not classified based on available information.

Components:

Zinc oxide:
Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Methyl salicylate:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: negative
(+)-Borman-2-one:
Test Type: Buehler Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative
Remarks: Based on data from similar materials

Germ cell mutagenicity
Not classified based on available information.

Components:

Zinc oxide:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
                       Result: negative
                       Test Type: In vitro mammalian cell gene mutation test
                       Method: OECD Test Guideline 476
                       Result: equivocal
                       Test Type: Chromosome aberration test in vitro
                       Result: equivocal

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
                       Species: Rat
                       Application Route: inhalation (dust/mist/fume)
                       Method: OECD Test Guideline 474
                       Result: negative

                       Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
                       Species: Rat
                       Application Route: inhalation (dust/mist/fume)
                       Result: positive

                       Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
                       Species: Mouse
                       Application Route: Intraperitoneal injection
                       Method: OECD Test Guideline 474
                       Result: negative

Germ cell mutagenicity- Assessment: Weight of evidence does not support classification as a germ cell mutagen.

Methyl salicylate:
Genotoxicity in vitro: Test Type: Chromosome aberration test in vitro
                        Result: negative
                        Test Type: Bacterial reverse mutation assay (AMES)
                        Result: negative
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SDS Number: 656973-00010
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Date of first issue: 02.05.2016

Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative
- Test Type: Mouse Lymphoma
  Result: negative

Genotoxicity in vivo:
- Test Type: Chromosomal aberration
  Species: CHO
  Result: negative

(+) - Bornan-2-one:
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative
  Remarks: Based on data from similar materials
  Test Type: In vitro mammalian cell gene mutation test
  Method: OECD Test Guideline 476
  Result: negative
  Remarks: Based on data from similar materials

Genotoxicity in vivo:
- Test Type: Chromosome aberration test in vitro
  Result: negative

Carcinogenicity:
Not classified based on available information.

Components:

Zinc oxide:
- Species: Mouse
- Application Route: Ingestion
- Exposure time: 1 Years
- Result: negative
- Remarks: Based on data from similar materials

Methyl salicylate:
- Species: Rat
- Application Route: Ingestion
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Exposure time : 2 Years
Result : negative

Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:
Species : Rat
Application Route : Oral
Exposure time : 2 Years
Result : negative

Species : Mouse
Application Route : Oral
Exposure time : 2 Years
Result : negative

Reproductive toxicity
Not classified based on available information.

Components:

Zinc oxide:
Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (dust/mist/fume)
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

Methyl salicylate:
Effects on fertility : Test Type: Three-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:
Effects on fertility : Test Type: Fertility
Species: Rat, male and female
Application Route: Oral
Fertility: NOAEL: 4 mg/kg body weight
Result: No effects on fertility

Effects on foetal development : Test Type: Development
Species: Rat
Application Route: Oral
Developmental Toxicity: LOAEL: 1 mg/kg body weight
Result: Embryo-foetal toxicity, No teratogenic effects
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</tbody>
</table>

- **Test Type:** Development  
  - **Species:** Rabbit  
  - **Application Route:** Oral  
  - **Developmental Toxicity:** LOAEL: 5 mg/kg body weight  
  - **Result:** Embryo-foetal toxicity, No teratogenic effects

- **Reproductive toxicity - Assessment:** Suspected of damaging the unborn child.

- **(+)-Boman-2-one:**
  - **Effects on foetal development:**  
    - **Test Type:** Embryo-foetal development  
    - **Species:** Rat  
    - **Application Route:** Ingestion  
    - **Result:** negative

- **STOT - single exposure**
  Not classified based on available information.

**Components:**

- **(+)-Boman-2-one:**
  - **Assessment:** May cause respiratory irritation.  
  - **Remarks:** Based on data from similar materials

- **STOT - repeated exposure**
  May cause damage to organs through prolonged or repeated exposure.

**Components:**

- **Zinc oxide:**
  - **Assessment:** No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

- **Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:**
  - **Target Organs:** Gastrointestinal tract, Blood, lymphatic system, Liver, Prostate  
  - **Assessment:** Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity**

**Components:**

- **Zinc oxide:**
  - **Species:** Rat, male  
  - **NOAEL:** 0.0015 mg/l  
  - **Application Route:** inhalation (dust/mist/fume)  
  - **Exposure time:** 3 Months  
  - **Method:** OECD Test Guideline 413

- **Methyl salicylate:**
  - **Species:** Rat  
  - **NOAEL:** 50 mg/kg  
  - **LOAEL:** 250 mg/kg
Application Route: Ingestion
Exposure time: 2 yr

Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:
Species: Rat
LOAEL: 0.25 mg/kg
Application Route: Oral
Exposure time: 98 w
Target Organs: Gastrointestinal tract, Blood, lymphatic system, Liver, Prostate

Species: Dog
LOAEL: 1 mg/kg
Application Route: Oral
Exposure time: 12 w
Target Organs: Blood

Species: Baboon
NOAEL: 0.5 mg/kg
LOAEL: 5 mg/kg
Application Route: Oral
Exposure time: 52 w
Target Organs: Gastrointestinal tract, Blood
Symptoms: constipation, Diarrhoea

(+)-Bornan-2-one:
Species: Rat
NOAEL: > 200 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Remarks: Based on data from similar materials

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:

Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:
Ingestion: Symptoms: Abdominal pain, Diarrhoea, constipation, heart-burn, Ulceration, Dizziness, Headache, Breathing difficulties, Rash

SECTION 12: Ecological information

12.1 Toxicity

Components:

Zinc oxide:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials
| Toxity to daphnia and other aquatic invertebrates | EC50 (Daphnia magna (Water flea)): > 0,01 - 0,1 mg/l Exposure time: 48 h Remarks: Based on data from similar materials |
| Toxity to algae/aquatic plants | EC50 (Selenastrum capricornutum (green algae)): > 0,1 - 1 mg/l Exposure time: 96 h Remarks: Based on data from similar materials |
| Toxity to daphnia and other aquatic invertebrates (Chronic toxicity) | NOEC: > 0,01 - 0,1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Remarks: Based on data from similar materials |
| M-Factor (Acute aquatic toxicity) | 10 |
| M-Factor (Chronic aquatic toxicity) | 10 |
| Methyl salicylate: | |
| Toxity to fish | LC50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 |
| Toxity to daphnia and other aquatic invertebrates | EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Remarks: Based on data from similar materials |
| Toxity to algae/aquatic plants | ErC50 (Desmodesmus subspicatus (green algae)): 27 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 |
| Toxity to microorganisms | EC10 (Pseudomonas putida): 140 mg/l Exposure time: 16 h |
| Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate: | |
| Toxity to fish | LC50 (Pimephales promelas (fathead minnow)): 166,6 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 |
### Toxicity to daphnia and other aquatic invertebrates
- **EC50 (Daphnia magna (Water flea)):** 80.1 mg/l  
  Exposure time: 48 h  
  Method: OECD Test Guideline 202

### Toxicity to algae/aquatic plants
- **EC50 (Pseudokirchneriella subcapitata (green algae)):** 71.9 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201  

  **NOEC (Pseudokirchneriella subcapitata (green algae)):** 49.2 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201

### Toxicity to fish (Chronic toxicity)
- **NOEC:** 0.32 mg/l  
  Exposure time: 32 d  
  Species: Pimephales promelas (fathead minnow)  
  Method: OECD Test Guideline 210

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
- **NOEC:** 10 mg/l  
  Exposure time: 21 d  
  Species: Daphnia magna (Water flea)  
  Method: OECD Test Guideline 211

### (+)-Bornan-2-one:

#### Toxicity to fish
- **LC50 (Danio rerio (zebra fish)):** > 10 - 100 mg/l  
  Exposure time: 96 h  
  Method: OECD Test Guideline 203  
  Remarks: Based on data from similar materials

#### Toxicity to daphnia and other aquatic invertebrates
- **EC50 (Daphnia magna (Water flea)):** > 1 - 10 mg/l  
  Exposure time: 48 h  
  Method: OECD Test Guideline 202  
  Remarks: Based on data from similar materials

#### Toxicity to algae/aquatic plants
- **ErC50 (Pseudokirchneriella subcapitata (green algae)):** > 1 - 10 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201  
  Remarks: Based on data from similar materials  
  **NOEC (Pseudokirchneriella subcapitata (green algae)):** > 0.01 - 0.1 mg/l  
  Exposure time: 72 h  
  Method: OECD Test Guideline 201  
  Remarks: Based on data from similar materials

#### Toxicity to microorganisms
- **EC50:** > 100 mg/l  
  Exposure time: 3 h  
  Method: OECD Test Guideline 209  
  Remarks: Based on data from similar materials
12.2 Persistence and degradability

**Components:**

**Methyl salicylate:**
- Biodegradability: Result: Readily biodegradable.
- Biodegradation: 98.4 %
- Exposure time: 28 d

**(+)-Boran-2-one:**
- Biodegradability: Result: Readily biodegradable.
  - Method: OECD Test Guideline 301F
  - Remarks: Based on data from similar materials

12.3 Bioaccumulative potential

**Components:**

**Zinc oxide:**
- Bioaccumulation: Species: Oncorhynchus mykiss (rainbow trout)
  - Bioconcentration factor (BCF): 78 - 2.060

**Methyl salicylate:**
- Partition coefficient: n-octanol/water: log Pow: 2.55

**Sodium [2-[(2,6-dichlorophenyl)amino]phenyl]acetate:**
- Partition coefficient: n-octanol/water: log Pow: 4.51

**(+)-Boran-2-one:**
- Partition coefficient: n-octanol/water: log Pow: 2.3

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

No data available

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Product:**
- Dispose of in accordance with local regulations.
  - According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
  - Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

**Contaminated packaging:**
- Empty containers should be taken to an approved waste handling site for recycling or disposal.
  - If not otherwise specified: Dispose of as unused product.
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SECTION 14: Transport information

14.1 UN number

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<th>Description</th>
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<td>ADN</td>
<td>UN 3077</td>
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<tr>
<td>ADR</td>
<td>UN 3077</td>
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<tr>
<td>RID</td>
<td>UN 3077</td>
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<tr>
<td>IMDG</td>
<td>UN 3077</td>
</tr>
<tr>
<td>IATA</td>
<td>UN 3077</td>
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</table>

14.2 UN proper shipping name

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<td>ADR</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide) (Zinc oxide)</td>
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<tr>
<td>RID</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide) (Zinc oxide)</td>
</tr>
<tr>
<td>IMDG</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide) ()</td>
</tr>
<tr>
<td>IATA</td>
<td>Environmentally hazardous substance, solid, n.o.s. (Zinc oxide) (Zinc oxide)</td>
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14.3 Transport hazard class(es)

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<tr>
<td>IATA</td>
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14.4 Packing group

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ADN</td>
<td>III</td>
<td>M7</td>
<td>90</td>
<td>9      (ENVIRONM.)</td>
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<tr>
<td>ADR</td>
<td>III</td>
<td>M7</td>
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<td></td>
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</table>

Hazard Identification Number : 90
Labels : 9 (ENVIRONM.)
Tunnel restriction code : (-)

**RID**
- Packing group : III
- Classification Code : M7
- Hazard Identification Number : 90
- Labels : 9 (ENVIRONM.)

**IMDG**
- Packing group : III
- Labels : 9 (ENVIRONM.)
- EmS Code : F-A, S-F

**IATA (Cargo)**
- Packing instruction (cargo aircraft) : 956
- Packing instruction (LQ) : Y956
- Packing group : III
- Labels : Miscellaneous,

**IATA (Passenger)**
- Packing instruction (passenger aircraft) : 956
- Packing instruction (LQ) : Y956
- Packing group : III
- Labels : Miscellaneous,

### 14.5 Environmental hazards

**ADN**
- Environmentally hazardous : yes

**ADR**
- Environmentally hazardous : yes

**RID**
- Environmentally hazardous : yes

**IMDG**
- Marine pollutant : yes

**IATA (Passenger)**
- Environmentally hazardous : yes

**IATA (Cargo)**
- Environmentally hazardous : yes

### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

**Remarks** : Not applicable for product as supplied.
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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The components of this product are reported in the following inventories:

- AICS: not determined
- DSL: not determined
- IECSC: not determined

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information: Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

- H228: Flammable solid.
- H301: Toxic if swallowed.
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H331: Toxic if inhaled.
- H335: May cause respiratory irritation.
- H361d: Suspected of damaging the unborn child.
- H372: Causes damage to organs through prolonged or repeated exposure.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.
- H411: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

- Acute Tox.: Acute toxicity
- Aquatic Acute: Short-term (acute) aquatic hazard
- Aquatic Chronic: Long-term (chronic) aquatic hazard
- Eye Irrit.: Eye irritation
- Flam. Sol.: Flammable solids
- Repr.: Reproductive toxicity
- Skin Irrit.: Skin irritation
- STOT RE: Specific target organ toxicity - repeated exposure
- STOT SE: Specific target organ toxicity - single exposure
- ZA OEL: South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
- ZA OEL / TWA OEL-RL: Long term occupational exposure limits - recommended limit
- ZA OEL / STEL OEL-RL: Short term occupational exposure limits - recommended limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Rail
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Further information


Classification of the mixture:

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<tr>
<th>Classification Procedure</th>
<th>Classification of the Mixture</th>
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<tbody>
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<td>Calculation method</td>
<td>STOT RE 2 H373</td>
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<tr>
<td>Calculation method</td>
<td>Aquatic Acute 1 H400</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Aquatic Chronic 1 H410</td>
</tr>
</tbody>
</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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.

ZA / EN