(S)-Methoprene Technical Grade

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: (S)-Methoprene Technical Grade
Other Names: SMTP
Recommended Use: A raw synthetic material used in the preparation of insect growth regulator products.
Company: Sumitomo Chemical Australia Pty Ltd
  A.B.N. 21 081 096 255
Address: 51 Rawson, EPPING NSW 2121
Telephone Number: (02) 8752 9000 (Mon–Fri 8am–5pm EST)
Emergency Telephone Number: 1800 024 973 (24 hours) (EMERGENCIES ONLY)
Website: www.sumitomo-chem.com.au

SECTION 2: HAZARDS IDENTIFICATION

Hazard Classification: Non-Hazardous according to the criteria of Safework Australia
SUSDP Classification (Poison Scheduling): Exempt from Scheduling.
ADG Classification: Not subject to the ADG Code when transported by Road and Rail. (ADG 7, Special Provision AU01).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>CAS number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>(S)-Methoprene</td>
<td>65733-16-6</td>
<td>≥ 92%</td>
</tr>
<tr>
<td>Other ingredients determined as non hazardous</td>
<td>-</td>
<td>to 100%</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (Phone Australia 131126; New Zealand 0800 764 766), and follow the advice given. Show this Material Safety Data Sheet to a doctor.

General: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

Swallowed: If swallowed, do not induce vomiting. Wash mouth with water. Give water to drink. Seek medical advice.

Skin contact: If on skin, remove contaminated clothing and wash skin thoroughly with soap and water. Launder contaminated clothing before re-use. Seek medical advice if irritation develops.

Eye contact: If in eyes, hold eyes open and flood with water for at least 15 minutes and seek medical advice.

Inhalation: If affected, remove from contaminated area to fresh air. If any signs or symptoms occur or persist, seek medical advice.

Note to physician: Apply basic aid and decontamination procedures. Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flashpoint: NDA
Flammable limits: NDA
Auto-ignition temperature: NDA
Suitable Extinguishing Media: Small fire: Use dry chemical, carbon dioxide, water spray or foam (alcohol resistant foam is preferred fire fighting medium, but, if it is not available, normal foam can be used). Large fire: Use water spray, fog or foam (alcohol resistant foam is preferred fire fighting medium, but, if it is not available, normal foam can be used).

Hazard from Combustion Products: May emit toxic and irritating fumes under fire conditions, including carbon dioxide and carbon monoxide.

Precautions for Fire Fighting and Special Protective Equipment: Ensure respiratory equipment is available. Evacuate immediate area. Advise Fire Brigade of nature of hazard. Wear full protective equipment, including breathing apparatus. Surrounding containers should be cooled using a fine water spray. All run-off must be contained.

Hazchem Code: None.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency Telephone Number: 1800 024 973 (24 hours) (EMERGENCIES ONLY)

METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP PROCEDURES

SPILLS
Stop the source of the spill if it is safe to do so. Contain the spill to prevent further contamination of the soil, surface water, or ground water. Wear personal protective equipment as specified in Section 8. Do not allow material to enter sewers or bodies of water.

Small Spills: (Liquid spill) Apply absorbent inert material such as soil, dry sand or vermiculite to the spill area. Sweep up material when absorption is complete and contain in a refuse vessel for disposal. If necessary, wash the spill area with an alkali detergent and water and absorb and contain as above.

Large Spills: (Liquid Spill) Place leaking containers into salvage drums. Apply absorbent inert material such as soil, dry sand or vermiculite to the spill area. Form a barricade around spill and in front of drains or waterways in spill vicinity, using soil or other non reactive material. Sweep up material and contain in a refuse vessel for disposal. Contact emergency services as required.

Disposal: Contaminated material must be disposed of in accordance with all State and/or Local regulations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: DO NOT USE OR STORE near flame, sparks or hot surfaces. Use only in well ventilated area. Keep container closed. Keep out of reach of children, unauthorised persons and animals. After handling and before eating, drinking or smoking, wash hands, arms and face with soap and water. For personal protection, see Section 8.

Conditions for Safe Storage: Keep out of reach of children, unauthorised persons and animals. Store in the closed, original container in a dry, cool, well ventilated area, out of direct sunlight. Do not store near food, feedstuffs, fertiliser or seed. Store at ambient temperatures.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

NATIONAL EXPOSURE STANDARDS
Australian Safety and Compensation Council (ASCC) exposure standards have not been assigned for the active ingredient.
ENGINEERING CONTROLS
Provide adequate ventilation. Keep container tightly closed.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Use only in well ventilated areas. Respiratory protection is recommended.
Hand Protection: Wear chemical resistant gloves.
Eye Protection: Avoid contact with eyes. Eye contact can be avoided by wearing protective eyewear.
Skin and Body Protection: Avoid contact with skin or clothing. Skin contact should be minimised by wearing protective clothing including gloves, long sleeved shirt, long pants and chemical resistant boots.
Other Information: Wash hands after use. Launder clothes, gloves and face shield or goggles before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Pale yellow liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>Fruity odour</td>
</tr>
<tr>
<td>pH</td>
<td>NDA</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>NDA</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>NDA</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt; 262°C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NA</td>
</tr>
<tr>
<td>Solubility</td>
<td>6.85 mg/L (20°C)</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>Soluble (in most organic solvents)</td>
</tr>
<tr>
<td>Density</td>
<td>0.924 (20°C), 0.921 (25°C) g/mL (based on (RS)-Methoprene)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NA</td>
</tr>
<tr>
<td>Flashpoint</td>
<td>NDA</td>
</tr>
<tr>
<td>Explosive Limits</td>
<td>NDA</td>
</tr>
<tr>
<td>Ignition Temperature</td>
<td>NDA</td>
</tr>
<tr>
<td>Octanol/Water Partition</td>
<td>NDA</td>
</tr>
<tr>
<td>Coefficient</td>
<td>NDA</td>
</tr>
<tr>
<td>Specific Rotation</td>
<td>$[\alpha]^{20}_{D} = + 5.64^\circ$</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability</td>
<td>Stable under recommended storage and handling conditions (See Section 7).</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Avoid direct sunlight. Isolate from sources of heat, naked flames or sparks.</td>
</tr>
<tr>
<td>Incompatible Materials</td>
<td>Strong acids, strong bases and strong oxidising agents.</td>
</tr>
<tr>
<td>Hazardous Decomposition</td>
<td>Emits toxic fumes under fire conditions (See also Section 5).</td>
</tr>
<tr>
<td>Hazardous Reactions</td>
<td>NDA</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE HEALTH EFFECTS
**Toxicology**

**Swallowed:** NOT HARMFUL.
(LD$_{50}$ (rat) > 5000 mg/kg) (based on (S)-Methoprene)

**Skin:** NOT HARMFUL.
(LD$_{50}$ (rabbit) > 5050 mg/kg) (based on (S)-Methoprene)

**Inhalation:** MODERATELY TOXIC.
(LC$_{50}$ rat (4 hour) > 2.38 mg/L) (based on (S)-Methoprene)
Inhalation may be harmful.

**Irritation**

**Skin:** SLIGHT IRRITANT. (based on (S)-Methoprene)

**Eye:** NON-IRRITANT. (based on (RS)-Methoprene)

**Sensitisation**

**Skin:** NOT A SKIN SENSITISER. (based on (RS)-Methoprene)

**CHRONIC HEALTH EFFECTS** (based on (RS)-Methoprene)

Methoprene is not considered as an oncogenic compound.

**OTHER TOXICOLOGICAL INFORMATION** (based on (RS)-Methoprene)

**Mutagenicity Information**

Methoprene is not a mutagenic compound.

**Teratology (Birth Defects) Information**

Methoprene is not a teratogenic compound.

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**SECTION 12: ECOLOGICAL INFORMATION**

**DO NOT** contaminate streams, rivers or waterways with the chemical or used containers.

**ECOTOXICITY** (based on (S)-Methoprene)

Highly toxic to fish:

- LC$_{50}$ Trout = 760 ppb
- LC$_{50}$ Bluegill > 370 ppb

Highly toxic to aquatic invertebrates:

- LC$_{50}$ Daphnia = 360 ppb

**ECOTOXICITY** (based on (RS)-Methoprene)

Low toxicity to adult bees:

- LD$_{50}$ Adult Honey bees (oral and topical) > 1000 µg/bee

**ENVIRONMENTAL FATE** (based on (RS)-Methoprene)

**Hydrolysis:** Half-life > 4 weeks

**Photolysis:** Half-life < 10 hours

**Soil half life:** In soil, rapidly degraded, under aerobic and anaerobic conditions.

- DT$_{50}$:~ 10 days

**Water solubility:** < 2 ppm

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**SECTION 13: DISPOSAL CONSIDERATIONS**

This material must be disposed of as a hazardous waste. Disposal should be in accordance with local, national or state regulations.
Contaminated Packaging: Break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

SECTION 14: TRANSPORT INFORMATION

Road/Rail Not subject to the ADG Code when transported by Road or Rail in packagings; IBC’s; or any other receptacle not exceeding 500 kg(L), (ADG Special Provision AU01).

Sea/Air Classified as dangerous in the meaning of Sea (IMDG) and Air (ICAO/IATA) transport regulations.

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (S-Methoprene)
Class: 9
Sub Risk Class: Not applicable
UN Number: 3082
Hazchem Code: none
Packing Group: III

SECTION 15: REGULATORY INFORMATION

Registration Status: The active ingredient is registered with the Australian Pesticides and Veterinary Medicines Authority (APVMA) and is also a known substance in New Zealand (HSNO Act).

SECTION 16: OTHER INFORMATION

Abbreviations:
NA Not Applicable
NDA No Data Available

Revision Date: 25 May 2013
Revision Number: 5

THE INFORMATION GIVEN IN THIS MSDS IS BASED ON DATA AVAILABLE AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. EACH USER SHOULD READ THIS MSDS AND CONSIDER THE INFORMATION IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE INCLUDING IN CONJUNCTION WITH OTHER PRODUCTS. IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY.