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

Product label name: Esfenvalerate, 5% emulsifiable concentrate
GIFAP Code: EC
Sumi-Alpha 5 EC (trade name)
Use: Insecticide (agricultural use)
Supplier: SUMITOMO CHEMICAL AGRO EUROPE S.A.
Parc d’Affaires de Crécy
2, Rue Claude Chappe
69370 Saint-Didier-au-Mont-d’Or
France
Tel.: +33 478 64 32 60

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product is to be considered as a preparation in conformance to EC directives.
Information on hazardous ingredients:

Chemical description: Esfenvalerate, 5% emulsifiable concentrate

Composition/Information on ingredients

<table>
<thead>
<tr>
<th>Number</th>
<th>% w/v</th>
<th>CAS number</th>
<th>Chemical name</th>
<th>Symbol(s)</th>
<th>Risk phrase(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt;=5</td>
<td>66230-04-4</td>
<td>(S)-alpha.-Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>1330-20-7</td>
<td>Xylene</td>
<td>N, T</td>
<td>R10, R53</td>
</tr>
<tr>
<td>3</td>
<td>Balance</td>
<td></td>
<td></td>
<td>Xn</td>
<td>R10, R20/21, R38</td>
</tr>
</tbody>
</table>

(*) All components are registered in EINECS/ELINCS
SCAE code: EM 1378/2

3. HAZARD IDENTIFICATION

Classified as hazardous according to EU directives 1999/45/EC and 2001/60/EC:
HARMFUL (Xn), DANGEROUS FOR THE ENVIRONMENT (N)
R10: Flammable
R20/22: Harmful by inhalation and if swallowed
R38: Irritating to skin
R41: Risk of serious damage to eyes
R43: May cause sensitization by skin contact
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Other hazards:
May cause a transient itching and/or burning sensation in exposed human skin (paresthesia).

4. FIRST AID MEASURES

Symptoms and effects:
May cause a transient itching and/or burning sensation in exposed human skin. Synthetic pyrethroids can produce paresthesia. Typically, symptoms begin several hours after cutaneous exposure, peaks within 12 hours and resolves within about 24 hours. Harmful by inhalation and if swallowed. Risk of serious damage to eyes. Irritating to skin. May cause sensitization by skin contact.

First aid:
General: In all cases of doubt, or when symptoms persist, seek medical attention.
Inhalation: Move to fresh air. If symptoms persist, seek medical advice.
Skin: Remove contaminated clothing. Wash immediately with soap and water.
Eye: Rinse immediately and as long as possible with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Always seek medical advice.
Ingestion: Rinse mouth. Never induce vomiting in unconscious or confused persons. Seek medical advice.

Advice to physician:
Symptomatic treatment is advised.

Date of revision: 24 January 2003
5. FIRE-FIGHTING MEASURES

Extinguishing media
Dry chemical powder, carbon dioxide.

Unsuitable extinguishing media
Water with full waterjet

Special exposure hazards
none known

Hazardous decomposition/combustion products
May emit toxic and irritating fumes under fire conditions.

Protective equipment
Wear self contained breathing apparatus. Wear suitable protective clothing and eye/face protection. See also section 8.

Other information
Water used to extinguish a fire should not be allowed to enter the drainage system or water courses.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Do not breathe spray. Avoid contact with skin and eyes. For personal protection see section 8.

Environmental precautions
Do not allow to escape into sewage system or water courses.

Methods for cleaning up
In case of spill (liquid), soak it up immediately with suitable absorbent such as sawdust or granular absorbent clay. Sweep up and dispose as waste following local regulations. Do not wash residues into drains or other waterways.

7. HANDLING AND STORAGE

Handling
The usual precautions for handling chemicals should be observed. For personal protection see section 8.

Fire and explosion prevention
Keep away from sources of ignition – No smoking. Prevent electrostatic discharges. Above the flash point an explosive mixture can be formed.

Storage requirements
Store in a dry and cool place. Keep container in a well-ventilated place. Keep away from heat. Keep container tightly closed.

Other information
Do not mix with water (except for the normal preparation).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
Provide adequate ventilation.

Exposure limits
No exposure limits have been established for this material. The following exposure limit(s) apply for:

<table>
<thead>
<tr>
<th>Name</th>
<th>Xylene</th>
<th>OES-TWA</th>
<th>441.000 mg/m³ Can be absorbed through skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>OES-STEL</td>
<td></td>
<td>662.000 mg/m³ Can be absorbed through skin</td>
<td></td>
</tr>
</tbody>
</table>

Personal protection
Respiratory
The usual precautions for handling chemicals should be observed.

Hand
Wear protective gloves.

Eye
Wear safety goggles or face shield.

Skin and body
Wear suitable protective clothing.

Other information
Launder clothes before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>clear liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>pale yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>faint characteristic</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>not determined</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>27°C (Tagliabue closed cup)</td>
</tr>
<tr>
<td>Flammability</td>
<td>not determined</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>437 °C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>vapours may form explosive mixtures with air</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>1.1 – 6.1 vol % (xylene)</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>not applicable (liquid)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>not determined</td>
</tr>
<tr>
<td>Density</td>
<td>0.903 g/ml (20°C)</td>
</tr>
<tr>
<td>Bulk density</td>
<td>not applicable</td>
</tr>
</tbody>
</table>
### SAFETY DATA SHEET
According to EC-directive 2001/58/EC

#### ESFENVALERATE 5 EC

**Solubility in water**
- emulsifiable in water (solubility of Esfenvalerate, technical grade: < 0.001 mg/l)

**Solubility in other solvents**
- not applicable

**pH value**
- 5.1 (1% aqueous dilution)

**Partition coefficient n-octanol/water**
- not determined (Esfenvalerate, technical grade: log Pow = 6.24)

**Relative vapour density (air = 1)**
- not determined

**Viscosity**
- 1.3 mPa.s (20°C)

**Surface tension**
- 40.9 mN/m (20°C)

### 10. STABILITY AND REACTIVITY

**Stability**
- Stable under recommended storage and handling conditions (see section 7).

**Conditions to avoid**
- Avoid high temperature. Keep away from sources of ignition – No smoking.

**Materials to avoid**
- Alkaline materials.

**Hazardous decomposition products**
- May emit toxic and irritating fumes under fire conditions (see also section 5).

### 11. TOXICOLOGICAL INFORMATION

No experimental toxicological data are available on the preparation as such. The following data are applicable to a similar formulation:

**Name**
- Esfenvalerate 5% emulsifiable concentrate

**Acute toxicity**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Route</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>rat</td>
<td>: &gt; 2000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>rat (4 hours)</td>
<td>: 2.6 mg/l (whole body)</td>
<td></td>
</tr>
</tbody>
</table>

**Irritation**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>: moderately irritant</td>
<td></td>
</tr>
<tr>
<td>Eye</td>
<td>: severely irritant</td>
<td></td>
</tr>
</tbody>
</table>

**Sensitization**
- sensitizing (Maximisation test)

**Other toxicological information**
- active component (Esfenvalerate technical grade):
  - genotoxicity: negative in all tests
  - teratogenicity, toxicity for reproduction: negative
  - oncogenicity: negative
  - temporary signs of neurotoxicity in rats (90-d study) at dose levels > 3 mg/kg/day.

### 12. ECOLOGICAL INFORMATION

No experimental ecological data are available on the preparation as such. The following data are applicable to a similar formulation or ingredient(s) listed below:

**Name**
- Esfenvalerate, 5% emulsifiable concentrate

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, 96h-LC50 (Oncorhynchus mykiss)</td>
<td>: 4.5 µg/l</td>
<td></td>
</tr>
<tr>
<td>21 days-LC50 (Oncorhynchus mykiss)</td>
<td>: 0.36 µg/l</td>
<td></td>
</tr>
<tr>
<td>(No Observed Effect Concentration (NOEC) : 0.18 µg/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daphnia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, 48h-EC50 (Daphnia magna)</td>
<td>: 3.4 µg/l (static)</td>
<td></td>
</tr>
<tr>
<td>Reproduction test, 21d-EC50 (Daphnia magna)</td>
<td>: 0.41 µg/l</td>
<td></td>
</tr>
<tr>
<td>(No Observed Effect Concentration (NOEC) : 0.056 µg/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity (Scenedesmus subspicatus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96h -EC50 (biomass)</td>
<td>: 0.135 mg/l ; 24-48h EC50 (growth rate) : 0.215 mg/l</td>
<td></td>
</tr>
<tr>
<td>(No Observed Effect Concentration (NOEC) : 0.05 mg/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, 48h-oral LD50 (Apis mellifera)</td>
<td>: about 0.8 µg a.s./bee</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, 48h-contact LD50 (Apis mellifera)</td>
<td>: 0.07 µg a.s./bee</td>
<td></td>
</tr>
</tbody>
</table>

**Earthworm**
- Acute toxicity, 14d-LC50: 10.6 mg/kg soil

**Name**
- Esfenvalerate, technical grade

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, LD50 (Mallard duck)</td>
<td>: &gt; 2250 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity, LD50 (Bobwhite quail)</td>
<td>1312 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>
Fate
Degradation Abiotic
pH5: DT50 = 129 days at 25°C
pH7: DT50 = limited hydrolysis
pH9: DT50 = 65 days at 25°C
Degradation Biotic
Not determined
Bioaccumulation
Log Pow : 6.24
Bio Concentration Factor (BCF), exposure 28 days (Cyprinus carpio): 2850 – 3650
depuration time: CT50 = approx. 7 - 8 days

13. DISPOSAL CONSIDERATIONS
Product
According to local regulations. For further advice contact manufacturer.
Contaminated packaging
According to local regulations.

14. TRANSPORT INFORMATION
Land transport
ADR/RID class 6.1 ADR/RID item number 72
Label(s) 6+3 Packing group III
Hazard Identification no. 63 Substance Identification no. 3351
Trem-Card CEFIC TEC(R)- 61GTF2-III UN number 3351
Proper shipping name Pyrethroid pesticide, liquid, toxic, flammable (contains: 5% esfenvalerate + approx. 85% xylene)

Sea transport
IMO/IMDG code Class 6.1
Packing group III UN number 3351
EMS 6.1-01 Marine pollutant yes
Proper shipping name Pyrethroid pesticide, liquid, toxic, flammable (contains: 5% esfenvalerate + approx. 85% xylene)

Air transport
ICAO-TI/IATA-DGR UN number 3351
Class 6.1 Packing group III
Proper shipping name Pyrethroid pesticide, liquid, toxic, flammable (contains: 5% esfenvalerate + approx. 85% xylene)

15. REGULATORY INFORMATION
Chemical description Esfenvalerate 5% emulsifiable concentrate
GIFAP Code : EC
Labelling according to EC directives
EC-number See section 2
Classification based on Tests

Symbol(s) HARMFUL (Xn) DANGEROUS FOR THE ENVIRONMENT (N)
R(isk) phrase(s) R10: Flammable
R20/22: Harmful by inhalation and if swallowed
R38: Irritating to skin
R41: Risk of serious damage to eyes
R43: May cause sensitization by skin contact
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Safety phrase(s) S16: Keep away from sources of ignition – No smoking
S23: Do not breathe spray
S24: Avoid contact with skin
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S36: In case of insufficient ventilation, wear suitable respiratory equipment
S37/39: Wear suitable gloves and eye/face protection
S60: This material and its container must be disposed of as hazardous waste
S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.

16. OTHER INFORMATION

This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Full text of risk phrase(s) used in this document:

R10: Flammable
R20/21: Harmful by inhalation and in contact with skin
R20/22: Harmful by inhalation and if swallowed
R23/25: Toxic by inhalation and if swallowed
R38: Irritating to skin
R41: Risk of serious damage to eyes
R43: May cause sensitization by skin contact
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53: May cause long-term adverse effects in the aquatic environment.

History

Date of previous version: 25 November 2002 (revision 1.00)
Date of revision: 24 January 2003
Revision: 1.01
Composed by: O. Mercier

Minor changes were made in sections 1, 2, 11, 14.