Product Name: GUARD DOG™ UV770 Light Stabilizer (HALS)

1. CHEMICAL PRODUCT AND COMPANY NAME

Product name: GUARD DOG™ UV770

Use: Stabilizer

Molecular formula: C$_{28}$H$_{52}$N$_2$O$_4$

2. Hazards Identification

Emergency overview

WARNING:
Toxic by inhalation. Severely irritating to the eyes. May cause sensitization by skin contact. Repeated or prolonged contact may cause skin irritation or allergic skin reactions.

MAY BE HARMFUL IF SWALLOWED. May cause metallic taste in mouth.

Prolonged or repeated exposure effects: CAN CAUSE NERVOUS SYSTEM DAMAGE.

Refer to MSDS Section 7 and 10 for Dust Explosion information.

Avoid contact with the skin, eyes and clothing.
Avoid inhalation.

State of matter: Solid
Color: White to cream
Odor: Odorless

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Chronic toxicity:

Carcinogenicity: The whole of the information available provides no indication of a carcinogenic effect.
Repeated dose toxicity: The substance may cause damage to the peripheral nervous system after repeated ingestion. The substance may cause damage to the central nervous system after repeated ingestion. May cause body weight changes.

Reproductive toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Genotoxicity: The substance was not mutagenic in bacteria. Mutagenicity tests revealed no genotoxicity potential.

Signs and symptoms of overexposure: The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11. Further important symptoms and effects are so far not known.

Potential environmental effects

Aquatic toxicity: Acutely toxic for aquatic organisms.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Content (W/W)</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>52829-07-9</td>
<td>100.0 %</td>
<td>bis (2, 2, 6, 6-tetramethyl-4-piperidyl) sebacate</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

General advice: Remove contaminated clothing.

If inhaled: If difficulties occur after dust has been inhaled, remove to fresh air and seek medical attention.

If on skin: Wash thoroughly with soap and water if irritation develops, seek medical attention.

If in eyes: Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed: Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Note to physician: Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point: > 150 °C (DIN 51584)
Autoignition: 310 °C (BAM)
Flammability: Not highly flammable (Directive 84/449/EEC, A.10)
Self-ignition temperature: Not applicable Based on its structural properties the product is not classified as self-igniting.

Suitable extinguishing media: Dry powder, foam

Unsuitable extinguishing media for safety reasons: Carbon dioxide

Additional information: Avoid whirling up the material/product because of the danger of dust explosion.
Hazards during fire-fighting: Harmful vapor. Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

Further information: Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

6. Accidental release measures

Personal precautions:
Avoid dust formation. Use personal protective clothing.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:
Avoid raising dust.
For small amounts: Pick up with suitable appliance and dispose of.
For large amounts: Contain with dust binding material and dispose of.

7. Handling and Storage

Handling

General advice:
Closed containers should only be opened in well-ventilated areas.

Protection against fire and explosion:
Avoid dust formation. Take precautionary measures against static discharges.

Storage

General advice:
Keep container tightly closed and dry; store in a cool place.

8. Exposure Controls and Personal Protection

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Tightly fitting safety goggles (chemical goggles) and face shield.

General safety and hygiene measures:
Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Form: Granules, crystalline
Odor: Odorless
Color: White to cream
pH value: 9.7 (1 % (m), 20 - 25 °C) (as suspension)
Melting point: 81 - 85 °C
Boiling point:  > 350 °C (1,013 hPa) (calculated)
Vapor pressure:  0.0000013 hPa (20 °C)
Density:  1.05 g/cm³ (20 °C)
Bulk density:  470 - 510 kg/m³
Partitioning coefficient n-Octanol/water (log Pow): 0.35 (20 - 25 °C)
% volatiles:  0.5 %
Solubility in water:  < 100 mg/l (20 °C)
Molar mass:  480.73 g/mol

Other Information: If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

**Dust explosion class:**
Dust explosion class 2 (Kst-value 200 up to 300 bar m s⁻¹) (St 2)

**Minimum ignition energy:**
No data available.

**Conditions to avoid:**
Avoid dust formation. Avoid deposition of dust. Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge.

**Substances to avoid:**
strong acids, strong bases, strong oxidizing agents

**Hazardous reactions:**
Dust explosion hazard.

**Decomposition products:**
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

**Thermal decomposition:**
> 170 °C (Isoperibolic (Lütolf oven)
> 350 °C (dynamic (Lütolf oven)

**Corrosion to metals:**
No corrosive effect on metal.

**Oxidizing properties:**
Based on its structural properties the product is not classified as oxidizing.

11. Toxicological information

**Acute toxicity**

**Oral:**
Type of value: LD₅₀
Species: rat
Value:  > 2,000 mg/kg

**Inhalation:**
Type of value: LC₅₀
Species: rat
Value:  7.7 mg/l
Exposure time:  4 h
Determined for dust

**Dermal:**
Type of value: LD₅₀
Species: rat
Value:  > 2,000 mg/kg

**Irritation / corrosion**

**Skin:**
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

**Eye:**
Species: rabbit
Result: Irritant.
Method: OECD Guideline 405

**Sensitization**
*Information on: bis(2,2,6,6-tetramethyl-4-piperidyl)sebacate*
*Assessment of sensitization: Skin sensitizing effects were not observed in animal studies. Human data do not fully exclude a skin sensitizing potential.*

*Guinea pig maximization test*
Species: guinea pig
Result: Non-sensitizing.
Method: OECD Guideline 406

**Genetic toxicity**
Experimental/calculated data:
Ames-test negative

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**12. Ecological Information**

**Fish**
Acute:
OECD Guideline 203 Oncorhynchus mykiss/LC50 (96 h): 13 mg/l

**Aquatic invertebrates**
Acute:
OECD Guideline 202, part 1 Daphnia magna/EC50 (24 h): 17 mg/l

**Aquatic plants**
Toxicity to aquatic plants:
Guideline 92/69/EEC, C.3 Algae/EC50 (72 h): 1.9 mg/l

**Microorganisms**
Toxicity to microorganisms:
OECD Guideline 209 activated sludge/EC50 (3 h): > 100 mg/l

**Degradability / Persistence**

**Biological / Abiological Degradation**
Test method: Directive 84/449/EEC, C.5 (aerobic), activated sludge
Method of analysis: CO2 formation relative to the theoretical value
Degree of elimination: 24 % (28 d)
Evaluation: Moderately/partially biodegradable.

**Other adverse effects:**
Do not discharge product into the environment without control.

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**13. Disposal considerations**

**Waste disposal of substance:**
Do not discharge into drains/surface waters/groundwater. Dispose of in accordance with national, state and local regulations.

**Container disposal:**
Dispose of in accordance with national, state and local regulations. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.
14. Transport Information

**Land transport**

USDOT Not classified as a dangerous good under transport regulations

**Sea transport**

IMDG

Hazard class: 9
Packing group: III
ID number: UN 3077
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains BIS (2, 2, 6, 6-TETRAMETHYL-4-PIPERIDINYL) SEBACATE)

**Air transport**

IATA/ICAO

Hazard class: 9
Packing group: III
ID number: UN 3077
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains BIS (2, 2, 6, 6-TETRAMETHYL-4-PIPERIDINYL) SEBACATE)

15. Regulatory Information

**Federal Regulations**

Registration status: Chemical TSCA, US released / listed

OSHA hazard category: Chronic target organ effects reported; Acute target organ effects reported; Toxic – inhalation

EPCRA 311/312 (Hazard categories): Acute; Chronic

16. Other Information

Unsuitable for use: This material is not intended for use in products for which prolonged contact with mucous membranes, body fluids or abraded skin, or implantation within the human body, is specifically intended, unless the finished product has been tested in accordance with nationally and internationally applicable safety testing requirements. Because of the wide range of such potential uses, we are not able to recommend this material as safe and effective for such uses and assume no liability for such uses.

**NFPA Hazard codes:**

Health: 2 Fire: 1 Reactivity: 0 Special: None

**HMIS III rating**

Health: 2 Flammability: 1 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

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