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|  Strong bonds. Trusted solutions. | Page: 1 |
| SAFETY DATA SHEET | Revision Date: 05/13/2019 |
| | Print Date: 5/15/2019 |
| | SDS Number: R1201888 |
| ZETAG™ 7587 ™ Trademark, Solenis or its subsidiaries or affiliates, registered in various countries 932116 | Version: 1.0 |

SECTION 1. IDENTIFICATION

Product identifier

Trade name : ZETAG™ 7587

™ Trademark, Solenis or its subsidiaries or affiliates,
registered in various countries

Recommended use of the chemical and restrictions on use

Use of the Substance/Mixture : Chemical for detergents
 Flocculating agent
 Paper chemical
 Performance Chemicals for Oilfield Applications
 Product for the printing industry

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| Details of the supplier of the safety data sheet Solenis LLC 500 Hercules Road Wilmington, Delaware 19808 United States of America (USA) RegulatoryRequestsNA@solenis.com | Emergency telephone number 1-844-SOLENIS (844-765-3647) Product Information Contact your local Solenis representative |
|---|--|

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

This material is not considered hazardous under the OSHA Hazard Communication Standard (HazCom 2012).

GHS label elements

This material is not considered hazardous under the OSHA Hazard Communication Standard (HazCom 2012).


Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

| Chemical name | CAS-No. | Classification | Concentration (%) |
|---------------|--------------|---|-------------------|
| AMIDE | Trade Secret | Not a dangerous substance or mixture according to the Globally Harmonised System (GHS). | ≥ 5 - < 10 |

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|-------------|----------|---------------------|-------------|
| ADIPIC ACID | 124-04-9 | Eye Irrit. 2A; H319 | ≥ 1.5 - < 5 |
|-------------|----------|---------------------|-------------|

SECTION 4. FIRST AID MEASURES

| | |
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| General advice | : No hazards which require special first aid measures. |
| If inhaled | : If breathed in, move person into fresh air. If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician. |
| In case of skin contact | : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water. |
| In case of eye contact | : Remove contact lenses. Protect unharmed eye. |
| If swallowed | : Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. |
| Most important symptoms and effects, both acute and delayed | : No symptoms known or expected. |
| Notes to physician | : No hazards which require special first aid measures. |

SECTION 5. FIREFIGHTING MEASURES

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| Suitable extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray Foam |
| Specific hazards during firefighting | : Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : Carbon monoxide Carbon dioxide (CO ₂) Nitrogen oxides (NO _x) acid vapors Ammonia Hydrocarbons |
| Specific extinguishing methods | : Product is compatible with standard fire-fighting agents. |
| Further information | : Fire residues and contaminated fire extinguishing water must |

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be disposed of in accordance with local regulations.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid dust formation.
Avoid breathing dust.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Comply with all applicable federal, state, and local regulations.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE


- Advice on protection against fire and explosion : Take measures to prevent the build up of electrostatic charge.
Provide appropriate exhaust ventilation at places where dust is formed.
- Advice on safe handling : Avoid dust formation.
Smoking, eating and drinking should be prohibited in the application area.
For personal protection see section 8.
- Conditions for safe storage : Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Electrical installations / working materials must comply with the technological safety standards.
- Materials to avoid : No materials to be especially mentioned.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|-------------|--------------|----------------------------------|---|---------|
| AMIDE | Trade Secret | TWA | 10 mg/m3 | US WEEL |
| ADIPIC ACID | 124-04-9 | TWA | 5 mg/m3 | ACGIH |

- Engineering measures** : Provide appropriate exhaust ventilation at places where dust is formed.

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General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

| | | |
|--------------------------|---|---|
| Respiratory protection | : | No personal respiratory protective equipment normally required. |
| Eye protection | : | Safety glasses |
| Skin and body protection | : | Wear as appropriate: Safety shoes Wear resistant gloves (consult your safety equipment supplier). |
| Hygiene measures | : | Avoid breathing dust. |

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|------------------------------|---|---|
| Appearance | : | granules |
| Colour | : | off-white |
| Odour | : | odourless |
| Odour Threshold | : | No data available |
| pH | : | 3.5 - 4.5 Concentration: 10 g/l |
| Melting point/freezing point | : | No data available |
| Boiling point/boiling range | : | Not applicable |
| Flash point | : | Not applicable |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | not readily ignited Not combustible Dust |
| Self-ignition | : | not determined |
| Upper explosion limit | : | No data available |
| Lower explosion limit | : | No data available |

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Hydrocarbons

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: Acute toxicity estimate

Components:

ADIPIC ACID:

Acute oral toxicity : LD50 (Rat): 5,560 mg/kg

Acute inhalation toxicity : LC 50 (Rat): > 7.7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: No adverse effect has been observed in acute inhalation toxicity tests.

Acute dermal toxicity : LD 50 (Rabbit): > 7,940 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

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

Components:

AMIDE:

Result: Not irritating to skin

ADIPIC ACID:

Result: Mildly irritating to skin


Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species: Rabbit
Result: No eye irritation

Remarks: Unlikely to cause eye irritation or injury.

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Product dust may be irritating to eyes, skin and respiratory system.

Components:

AMIDE:

Result: Not irritating to eyes

ADIPIC ACID:

Result: Severely irritating to eyes

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Components:

AMIDE:

Genotoxicity in vitro : Test Type: Ames test
Result: negative

Carcinogenicity

Not classified based on available information.

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure


Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

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Further information

Product:

Remarks: No data available

Components:

ADIPIC ACID:

Remarks: Central nervous system

Remarks: Gastro-intestinal system

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Fish): > 1 - 100 mg/l
 Exposure time: 96 h
 Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): > 10 - 100 mg/l
 Exposure time: 48 h

Ecotoxicology Assessment

Acute aquatic toxicity : Acute aquatic toxicity Category 2; Toxic to aquatic life.

Chronic aquatic toxicity : Not classified based on available information.

Components:


AMIDE:

Toxicity to fish : LC 50 (Leuciscus idus (Golden orfe)): > 6,810 mg/l
 Exposure time: 96 h
 LC 50 (Poecilia reticulata (guppy)): 17,500 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 3,910 mg/l
 Exposure time: 48 h
 Method: Static

ADIPIC ACID:

Toxicity to fish : LC 50 (Fathead minnow (Pimephales promelas)): 97 mg/l
 Exposure time: 96 h
 Method: Static
 Remarks: Mortality
 LC 50 (Danio rerio (zebra fish)): 1,000 mg/l
 Exposure time: 96 h

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Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Daphnia magna)): 85.6 mg/l
Exposure time: 48 h

Persistence and degradability

Product:

Biodegradability : Result: Not readily biodegradable.

Stability in water : Hydrolysis: > 70 %(28 d)
Remarks: Hydrolyses readily.

Components:

AMIDE:

Biodegradability : Remarks: Expected to be ultimately biodegradable

Bioaccumulative potential

Components:

AMIDE:

Bioaccumulation : Species: Green algae (Chlorella fusca vacuolata)
Bioconcentration factor (BCF): 11,700
Exposure time: 24 h
Concentration: 0.05 mg/l
Method: Static

Partition coefficient: n-octanol/water : log Pow: -2.11

ADIPIC ACID:

Partition coefficient: n-octanol/water : log Pow: 0.08

Mobility in soil


Product:

Stability in soil : Remarks: No data available

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
- Dispose of in accordance with all applicable local, state and federal regulations.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

REGULATION

| ID NUMBER | PROPER SHIPPING NAME | *HAZARD CLASS | SUBSIDIARY HAZARDS | PACKING GROUP | MARINE POLLUTANT / LTD. QTY. |
|-----------|----------------------|---------------|--------------------|---------------|------------------------------|
| | | | | | |

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

| |
|---------------------|
| Not dangerous goods |
| |

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

| |
|---------------------|
| Not dangerous goods |
| |

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

| |
|---------------------|
| Not dangerous goods |
| |

INTERNATIONAL MARITIME DANGEROUS GOODS

| |
|---------------------|
| Not dangerous goods |
| |

TRANSPORT CANADA - RAIL


| |
|---------------------|
| Not dangerous goods |
| |

TRANSPORT CANADA - ROAD

| |
|---------------------|
| Not dangerous goods |
| |

U.S. DOT - INLAND WATERWAYS

| |
|---------------------|
| Not dangerous goods |
| |

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U.S. DOT - RAIL

| |
|---------------------|
| Not dangerous goods |
| |

U.S. DOT - ROAD

| |
|---------------------|
| Not dangerous goods |
| |

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

| | |
|------------------|----|
| Marine pollutant | no |
|------------------|----|

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|-------------|----------|-----------------------|--------------------------------|
| ADIPIC ACID | 124-04-9 | 5000 | 106179 |

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

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


NZIoC : On the inventory, or in compliance with the inventory

DSL : All components of this product are on the Canadian DSL

AICS : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

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PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : Not in compliance with the inventory

TSCA : On TSCA Inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

Revision Date: 05/13/2019

Full text of H-Statements

H319 : Causes serious eye irritation.

Full text of other abbreviations

Eye Irrit. : Eye irritation

Further information

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by the Solenis Environmental Health and Safety Department.

Sources of key data used to compile the Safety Data Sheet

Key literature references and sources of data


SOLENIS Internal data

SOLENIS internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous

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Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

US / EN