



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

| | | | |
|------------------------|------------|-------------------------|------------|
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SECTION 1: Identification

1.1. Product identifier

FT-31, Denatonium Benzoate Sensitivity Solution

Product Identification Numbers

70-0707-0965-7

1.2. Recommended use and restrictions on use

Recommended use

Sensitivity Test Solution.

1.3. Supplier's details

Address: 3M Technologies (S) Pte Ltd, 10 Ang Mo Kio Street 65, Singapore 569059
Telephone: +65 6450 8888
Website: www.3m.com.sg

1.4. Emergency telephone number

+65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

This product is not classified as hazardous per GHS criteria as implemented by Singapore Standard SS586: 2022.

2.2. Label elements

SIGNAL WORD

Not applicable.

Symbols

Not applicable

Pictograms

Not applicable

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

| Ingredient | CAS Nbr | % by Wt |
|---------------------|-----------|----------|
| Water | 7732-18-5 | 90 - 100 |
| Sodium chloride | 7647-14-5 | 3 - 10 |
| Denatonium benzoate | 3734-33-6 | 0 - 1 |

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact

If exposed, wash with soap and water. If signs/symptoms develop, get medical attention.

Eye contact

If exposed, flush eyes with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms develop, get medical attention.

If swallowed

Do not induce vomiting. Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Non-combustible. Use a fire fighting agent suitable for surrounding fire. Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

None inherent in this product.

5.3. Special protective actions for fire-fighters

No special protective actions for fire-fighters are anticipated.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Observe precautions from other sections.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially

available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with water. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

For industrial/occupational use only. Not for consumer sale or use. Do not eat, drink or smoke when using this product. Avoid release to the environment.

7.2. Conditions for safe storage including any incompatibilities

No special storage requirements.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No occupational exposure limit values exist for any of the components listed in Section 3 of this Safety Data Sheet.

8.2. Exposure controls

8.2.1. Engineering controls

No engineering controls required.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

None required.

Skin/hand protection

No protective gloves required.

Respiratory protection

None required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|---|
| Physical state | Liquid. |
| Color | Colorless |
| Odor | Odorless |
| Odour threshold | <i>No data available.</i> |
| pH | ± 6.52 Units not available or not applicable. |
| Melting point/Freezing point | <i>Not applicable.</i> |
| Boiling point/Initial boiling point/Boiling range | ≥ 100 °C |
| Flash point | No flash point |
| Evaporation rate | <i>Not applicable.</i> |
| Flammability | Not applicable. |
| Flammable Limits(LEL) | <i>Not applicable.</i> |
| Flammable Limits(UEL) | <i>Not applicable.</i> |

| | |
|---|---------------------------|
| Vapour pressure | 2,399.8 Pa [@ 20 °C] |
| Vapor Density and/or Relative Vapor Density | <i>Not applicable.</i> |
| Density | 1.034 g/ml |
| Relative density | 1.034 [Ref Std: WATER=1] |
| Water solubility | Complete |
| Solubility- non-water | <i>No data available.</i> |
| Partition coefficient: n-octanol/water | <i>No data available.</i> |
| Autoignition temperature | <i>Not applicable.</i> |
| Decomposition temperature | <i>No data available.</i> |
| Kinematic Viscosity | <i>Not applicable.</i> |
| Volatile organic compounds (VOC) | <i>Not applicable.</i> |
| Percent volatile | <i>Not applicable.</i> |
| VOC less H ₂ O & exempt solvents | <i>Not applicable.</i> |
| Molecular weight | <i>Not applicable.</i> |

| | |
|--------------------------|------------------------|
| Particle Characteristics | <i>Not applicable.</i> |
|--------------------------|------------------------|

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is considered to be non reactive under normal use conditions

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

None known.

10.6 Hazardous decomposition products

Substance

None known.

Condition

Not specified.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation

Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin contact

Contact with the skin during product use is not expected to result in significant irritation.

Eye contact

Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion

No known health effects.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

| Name | Route | Species | Value |
|---------------------|--------------------------------|---------|--|
| Overall product | Ingestion | | No data available; calculated ATE >5,000 mg/kg |
| Sodium chloride | Dermal | Rabbit | LD50 > 10,000 mg/kg |
| Sodium chloride | Inhalation-Dust/Mist (4 hours) | Rat | LC50 > 10.5 mg/l |
| Sodium chloride | Ingestion | Rat | LD50 3,550 mg/kg |
| Denatonium benzoate | Inhalation-Dust/Mist | | LC50 estimated to be 1 - 5 mg/l |
| Denatonium benzoate | Dermal | Rat | LD50 > 2,000 mg/kg |
| Denatonium benzoate | Ingestion | Rat | LD50 584 mg/kg |

ATE = acute toxicity estimate

Skin Corrosion/Irritation

| Name | Species | Value |
|---------------------|---------|---------------------------|
| Sodium chloride | Rabbit | No significant irritation |
| Denatonium benzoate | Rabbit | Mild irritant |

Serious Eye Damage/Irritation

| Name | Species | Value |
|---------------------|---------|---------------|
| Sodium chloride | Rabbit | Mild irritant |
| Denatonium benzoate | Rabbit | Corrosive |

Sensitization:

Skin Sensitisation

| Name | Species | Value |
|---------------------|------------|----------------|
| Overall product | Guinea pig | Not classified |
| Denatonium benzoate | Human | Not classified |

Respiratory Sensitisation

| Name | Species | Value |
|---------------------|---------|----------------|
| Denatonium benzoate | Human | Not classified |

Germ Cell Mutagenicity

| Name | Route | Value |
|------|-------|-------|
|------|-------|-------|

| | | |
|---------------------|----------|--|
| | | |
| Sodium chloride | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Sodium chloride | In vivo | Some positive data exist, but the data are not sufficient for classification |
| Denatonium benzoate | In Vitro | Not mutagenic |
| Denatonium benzoate | In vivo | Not mutagenic |

Carcinogenicity

| Name | Route | Species | Value |
|---------------------|-----------|---------|------------------|
| Sodium chloride | Ingestion | Rat | Not carcinogenic |
| Denatonium benzoate | Ingestion | Rat | Not carcinogenic |

Reproductive Toxicity
Reproductive and/or Developmental Effects

For the component/components, either no data are currently available or the data are not sufficient for classification.

Target Organ(s)
Specific Target Organ Toxicity - single exposure

For the component/components, either no data are currently available or the data are not sufficient for classification.

Specific Target Organ Toxicity - repeated exposure

| Name | Route | Target Organ(s) | Value | Species | Test result | Exposure Duration |
|---------------------|-----------|--|--|---------|-----------------------|-------------------|
| Sodium chloride | Ingestion | blood kidney and/or bladder vascular system | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL 2,240 mg/kg/day | 9 months |
| Sodium chloride | Ingestion | nervous system eyes | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL 1,700 mg/kg/day | 90 days |
| Sodium chloride | Ingestion | liver respiratory system | Not classified | Rat | NOAEL 33 mg/kg/day | 90 days |
| Denatonium benzoate | Ingestion | endocrine system heart bone, teeth, nails, and/or hair hematopoietic system liver immune system muscles nervous system eyes kidney and/or bladder respiratory system | Not classified | Rat | NOAEL 16 mg/kg/day | 2 years |

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity**Acute aquatic hazard:**

Not acutely toxic to aquatic life by GHS criteria.

Chronic aquatic hazard:

Not chronically toxic to aquatic life by GHS criteria.

No product test data available.

| Material | CAS Nbr | Organism | Type | Exposure | Test endpoint | Test result |
|---------------------|-----------|-------------------------------|--------------|----------|---------------|--------------|
| Sodium chloride | 7647-14-5 | Activated sludge | Experimental | N/A | NOEC | 8,000 mg/l |
| Sodium chloride | 7647-14-5 | Algae or other aquatic plants | Experimental | 96 hours | EC50 | 2,430 mg/l |
| Sodium chloride | 7647-14-5 | Bluegill | Experimental | 96 hours | LC50 | 5,840 mg/l |
| Sodium chloride | 7647-14-5 | Water flea | Experimental | 48 hours | LC50 | 874 mg/l |
| Sodium chloride | 7647-14-5 | Fathead minnow | Experimental | 33 days | NOEC | 252 mg/l |
| Sodium chloride | 7647-14-5 | Water flea | Experimental | 21 days | NOEC | 314 mg/l |
| Denatonium benzoate | 3734-33-6 | Green algae | Experimental | 72 hours | EC50 | 281.556 mg/l |
| Denatonium benzoate | 3734-33-6 | Invertebrate | Experimental | 48 hours | LC50 | 400 mg/l |
| Denatonium benzoate | 3734-33-6 | Water flea | Experimental | 48 hours | EC50 | >500 mg/l |
| Denatonium benzoate | 3734-33-6 | Zebra Fish | Experimental | 96 hours | LC50 | >100 mg/l |

12.2. Persistence and degradability

| Material | CAS Nbr | Test type | Duration | Study Type | Test result | Protocol |
|---------------------|-----------|--|----------|-----------------------------|--------------------|-------------------------------------|
| Sodium chloride | 7647-14-5 | Data not available-insufficient | N/A | N/A | N/A | N/A |
| Denatonium benzoate | 3734-33-6 | Experimental Biodegradation | 28 days | BOD | 18.17 %BOD/ThO D | OECD 301F - Manometric respirometry |
| Denatonium benzoate | 3734-33-6 | Experimental Aquatic Inherent Biodegrad. | 28 days | Percent degraded | 36 %removal of DOC | OECD 302B Zahn-Wellens/EVPA |
| Denatonium benzoate | 3734-33-6 | Experimental Hydrolysis | | Hydrolytic half-life (pH 7) | >1 years (t 1/2) | EPA N 161-1 Hydrolysis |

12.3 : Bioaccumulative potential

| Material | CAS Nbr | Test type | Duration | Study Type | Test result | Protocol |
|---------------------|-----------|---|----------|------------|-------------|------------------------------|
| Sodium chloride | 7647-14-5 | Data not available or insufficient for classification | N/A | N/A | N/A | N/A |
| Denatonium benzoate | 3734-33-6 | Experimental Bioconcentration | | Log Kow | 2.2 | OECD 117 log Kow HPLC method |

12.4. Mobility in soil

Please contact manufacturer for more details

12.5 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Disposal methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Product components have been assessed to be treatable in properly operating wastewater treatment systems (industrial, municipal, commercial) with a minimum of biological (aerobic) secondary treatment. Waste product may be directly discharged to wastewater treatment systems. Changes in the manner of which a product is used will require an evaluation to determine proper disposal. Empty and clean product containers may be disposed as non-hazardous waste. Consult your specific regulations and service providers to determine available options and requirements.

SECTION 14: Transport Information**International Regulations**

UN No.: Not restricted for transport.

UN Proper shipping name: Not restricted for transport.

Transportation Class (IMO): None assigned

Transportation Class (IATA): None assigned

Other Dangerous Goods Descriptions (IMO): None assigned

Other Dangerous Goods Descriptions (IATA): None assigned

Packing Group: None assigned

Marine pollutant: None assigned

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Global inventory status**

Contact 3M for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

This product may contain component(s) that are regulated by the following:

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: this product is subject to SDS, labelling, PEL and other requirements in the Act/Regulations.

SECTION 16: Other information

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

3M Singapore SDSs are available at www.3m.com.sg