



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-32, Denatonium Benzoate Fit Test Solution

Product Identification Numbers

70-0707-0966-5

1.2. Recommended use and restrictions on use

Recommended use

Fit 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 6888 (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.

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	80 - 100
Sodium Chloride	7647-14-5	3 - 7
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

No need for first aid is anticipated.

Eye contact

No need for first aid is anticipated.

If swallowed

No need for first aid is anticipated.

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

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.

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

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

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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 or professional use only. 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.
Appearance/Odour	Clear, odourless solution with a bitter taste. Freezing point = -4 degrees Centigrade.
Odour threshold	<i>No data available.</i>
pH	± 6.52
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 (solid, gas)	Not applicable.
Flammable Limits(LEL)	<i>Not applicable.</i>
Flammable Limits(UEL)	<i>Not applicable.</i>
Vapour pressure	2,399.8 Pa [@ 20 °C]

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Vapour 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>
Viscosity	<i>Not applicable.</i>
Molecular weight	<i>Not applicable.</i>
Volatile organic compounds (VOC)	<i>Not applicable.</i>
Percent volatile	<i>Not applicable.</i>
VOC less H2O & exempt solvents	<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

<u>Substance</u>	<u>Condition</u>
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None known.

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.

FT-32, Denatonium Benzoate Fit Test Solution**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
Overall product	Rabbit	No significant irritation
Sodium Chloride	Rabbit	Mild irritant
Denatonium benzoate	Rabbit	Corrosive

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

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Denatonium benzoate	In vivo	Not mutagenic
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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**

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Overall product	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.016 mg/l	4 hours

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.

FT-32, Denatonium Benzoate Fit Test Solution**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	Algae other	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	Crustacea	Experimental	96 hours	LC50	400 mg/l
Denatonium benzoate	3734-33-6	Green algae	Experimental	72 hours	EC50	282 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	
Denatonium benzoate	3734-33-6	Experimental Biodegradation	28 days	BOD	18.17 % weight	OECD 301F - Manometric respirometry

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	Other methods

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.

Fire Safety (Petroleum And Flammable Materials) Regulations: this product is subject to import, transport and storage requirements in the Regulation.

Sewerage & Drainage Act and Sewerage and Drainage (Trade Effluent) Regulations: This product is subject to the requirements in the act/regulation.

Misuse of Drug Act: This product is subject to the requirements of the Act.

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.

For more information, please visit www.limkimhai.com.sg/3m-sensitivity-fit-test-solutions/

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