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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier.**
Bitrex™ Fit Test Solution.
- Product identification numbers.**
Test B (2041-12K).
- 1.2 Relevant identified uses of the substance or mixture and uses advised against identified uses.**
Qualitative Fit Testing - Fit Test Solution.
- 1.3 Details of the supplier of the substance or mixture.**
Address: Alpha Solway Limited,
Factory 1, Queensberry Street, ANNAN, Dumfriesshire, DG12 5BL.
E-Mail: sales@alphasolway.com
Website: www.alphasolway.com
- 1.4 Emergency telephone number.**
Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department.

SECTION 2: Hazard identification

- 2.1 Classification of the substance or mixture.**
Dangerous Substances Directive (DSD), 67/548/EEC or Dangerous Preparations Directive (DPD), 1999/45/EC or classified as hazardous under the CLP Regulation (EC) No. 1272/2008.
This product is not classified as hazardous according to EU Directive 1999/45/EC.
- 2.2 Label elements.**
Dangerous Substances Directive (DSD), 67/548/EEC or Dangerous Preparations Directive (DPD), 1999/45/EC.
- Symbol(s):**
None.
- Contains:**
No ingredients are assigned to the label.
- 2.3 Other hazards.**
None known.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Ingredient	CAS No.	EU Inventory	% by Wt.	Classification
Water	7732-18-5		95	
Sodium Chloride	7647-14-5	EINECS 231-598-3	4.8	
Denatonium Benzoate	3734-33-6	EINECS 223-095-2	< 0.2	Xn: R20, R22, (Johnson Matthey / Macfarlan Smith) Xi: R41, R36, R38, R52/53 (Johnson Matthey / Macfarlan Smith) Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412 (Johnson Matthey / Macfarlan Smith)

Please see section 16 for the full text of any R phrases and H statements referred to in this section.

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS.

SECTION 4: First aid measures

4.1 Description of first aid measures.

Inhalation.

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

Skin contact.

Not irritating to skin and is not considered a skin sensitizer, so no need for first aid is anticipated.

Eye contact.

Not irritating to eyes, so 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.

Not applicable.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media.

Material will not burn. 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 Advice for fire-fighters.

No unusual fire or explosion hazards are anticipated.

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SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures.**
Ventilate the area with fresh air.
- 6.2 Environmental precautions.**
Avoid release to the environment.
- 6.3 Methods and material for containment and cleaning up.**
Contain spill, cover with commercially available inorganic absorbent material and mix in sufficient material until it appears dry. Collect as much of the spilled material as possible and place in an appropriate closed container, and dispose of according to the local or regional authority requirements. Clean up any residue with water.
- 6.4 Reference to other sections.**
Refer to section 8 and section 13 for more information.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling.**
For industrial or professional use only. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest.
- 7.2 Conditions for safe storage including any incompatibilities.**
Store in original packaging, in a cool, well ventilated area.
Shelf Life: 5 Years
- 7.3 Specific end use(s).**
See information in section 1.2 for identified uses. See information in sections 7.1 and 7.2 for handling and storage recommendations. See section 8 for exposure controls and personal protection recommendations.

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.**
None required.
- 8.2.2 Personal protective equipment (PPE).**
- Eye/face protection.**
None required.
- Skin/hand protection.**
Skin protection is not required.
- Respiratory protection.**
None required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties.

Physical state	Liquid.
Appearance	Colourless solution with a bitter taste.
Odour	Alcohol-like (Very slight).
Odour threshold	Not available.
pH	Not available.
Melting point / Freezing point	Not available.
Boiling point / Boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Flammable Limits (UEL)	Not available.
Flammable Limits (LEL)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Water solubility	Easily soluble in cold and hot water.
Solubility: non-water	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information.

No Additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity.

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

10.2 Chemical stability.

This product is stable.

10.3 Possibility of hazardous reactions.

Under normal conditions of storage and use hazardous reactions should not occur.

10.4 Conditions to avoid.

No Specific data.

10.5 Incompatible materials.

No Specific data.

10.6 Hazardous decomposition products.

Substance.

Not specified.

Condition.

Under normal conditions of storage and use hazardous reactions should not occur.

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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 health effects are expected

11.1.2 Mixtures: Toxicological data

Acute toxicity.

Name	Route	Species	Value
Denatonium benzoate	Oral	Rat	LD ₅₀ m: 841 mg/kg bw f: 648 mg/kg bw
Denatonium benzoate	Dermal	Rat	> 2000 mg/kg bw
Denatonium benzoate	Inhalation	Rat	m & f: 0.20 mg/l

Irritation/Corrosion.

Name	Result	Species
Denatonium benzoate	Eyes - Severely irritant	Rat
Denatonium benzoate	Skin - No irritation	Rat
Denatonium benzoate	Skin - No sensitizing	Rat

Sensitisation.

No data available.

Repeated dose toxicity.

No data available.

Carcinogenicity.

No data available.

Mutagenicity.

No data available.

Toxicity for reproduction.

No data available.

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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. 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.

Effects on terrestrial vertebrates.

Species	Test substance	Time scale	End point (mg/kg bw/day)	End point (mg/kg feed)
<i>C. virginianus./Quail</i>	Bitrex	Acute	196 mg/kg bw	
<i>C. virginianus./Quail</i>	Bitrex	Short Term	778.3 mg/kg bw/d	> 5200 ppm
<i>Anas platyrhynchos/Mallard</i>	Bitrex	Short Term	841.8 mg/kg bw/d	> 5200 ppm

Toxicity data for aquatic species.

Group	Test substance	Time-scale (Test type)	End point	Toxicity (mg/L)
Fish				
<i>S. gairdneri/Trout</i>	Bitrex	96 hr (static)	Mortality, EC50	> 1000
Aquatic invertebrate				
<i>Cragon sp./Shrimp</i>	Bitrex	96 hr (static)	Mortality, EC50	400
<i>D. magna/Daphnia</i>	Bitrex	48 h (static)	Mortality, EC50	>500

12.2 Persistence and degradability.

No data available.

12.3 Bioaccumulative potential.

No data available.

12.4 Mobility to soil.

No data available.

12.5 Results of the PBT and vPvB assessment.

No information available at this time.

12.6 Other adverse effects.

No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods.

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

This product has been classified as a non-hazardous waste. Prior to disposal, consult all applicable authorities and regulations to insure proper classification. Dispose of waste product in a permitted industrial waste facility. 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.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of Alpha Solway, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code, (product as sold).

161002 Aqueous liquid wastes other than those mentioned in 16 10 01.

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SECTION 14: Transportation information

Test B (2041-12k).

Not hazardous for transportation.

- 14.1 UN number.**
Not available.
- 14.2 UN proper shipping name.**
Not available.
- 14.3 Transport hazard class(es).**
Not available.
- 14.4 Packing group.**
--.
- 14.5 Environmental hazards.**
No.
- 14.6 Special precautions for user.**
Always transport in original packaging.
- 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code.**
Not available.

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.**
No information required.
- 15.2 Chemical Safety Assessment.**
Not applicable.

SECTION 16: Other information

Revision information:

Initial issue

Abbreviations and acronyms:

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals, [*Regulation (EC) 1907/2006*].

CLP = Classification, Labelling and Packaging Regulation, [*Regulation (EC) No. 1272/2008*].

CAS No. = unique numerical identifiers assigned by the Chemical Abstracts Service to every chemical substance described in the open scientific literature.

EINECS = European Inventory of Existing Commercial Chemical Substances, (a unique seven-digit identifier that is assigned to chemical substances for regulatory purposes within the European Union by the regulatory authorities.).

LD₅₀ = Lethal Dose to 50%.

EC₅₀ = Effective Concentration to 50%.

PBT = Persistent, Bioaccumulative and Toxic.

vPvB = Very Persistent and Very Bioaccumulative

MARPOL 73/78 = the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978, ("*MARPOL*" is short for *Marine Pollution* and *73/78* short for the years *1973* and *1978*.).

IBC Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

GHS = Globally Harmonized System of Classification and Labelling of Chemicals.

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Literature references and sources for data

- Denatonium Benzoate Section 3: Composition/information on ingredients.
Classification of the substance in mixture, (Dangerous Substances Directive, 67/548/EEC / Dangerous Preparations Directive, 1999/45/EC / CLP Regulation (EC) No. 1272/2008) - Johnson Matthey/Macfarlan Smith
SDS - Bitrex 2.5% (w/v) in Water, Issue 08/01/2014
- Denatonium Benzoate Section 11: Toxicological Information (11.1.2 - Toxicological Data).
EFSA, (European Food Safety Authority), Journal 2012;10(1):2483, (page 18)
- Denatonium Benzoate Section 12: Ecological information (12.1 - Toxicity)
EFSA, (European Food Safety Authority), Journal 2012;10(1):2483, (page 29)

Method(s) of evaluating information referred to in Article 9 of Regulation (EC) No. 1272/2008 used for the purpose of classification:

Article 9(4), where only the information referred to in Article 6(5) is available.

Full text of abbreviated R phrases:

- R20 Harmful by inhalation
R22 Harmful if swallowed
R41 Risk of serious damage to eyes
R36 Irritating to eyes
R38 Irritating to skin
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of abbreviated H statements:

- H302 Harmful if swallowed
H315 Causes skin irritation
H318 Causes serious eye damage
H332 Harmful if inhaled
H413 Harmful to aquatic life with long-lasting effects

Full text of classifications, [DSD/DPD]:

- Xn Harmful
Xi Irritant

Full text of classifications, [CLP/GHS]:

- | | |
|--------------------------|--|
| Acute Tox. 4, H302 | ACUTE TOXICITY: ORAL - Category 4 |
| Acute Tox. 4, H332 | ACUTE TOXICITY: INHALATION - Category 4 |
| Skin Irrit. 2, H315 | SKIN CORROSION/IRRITATION - Category 2 |
| Eye Dam. 1, H318 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 |
| Aquatic Chronic. 3, H412 | AQUATIC TOXICITY (CHRONIC) - Category 3 |

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.

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