SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Revision date 03/01/2024 **Revision Number** 1

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

1.1. Product identifier

Product Code(s)	167501
Safety data sheet number	0000046
Product Name	White Vinegar - Zesty Citrus
Pure substance/mixture	Mixture
Formula	1675F1V1

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use	Hard surface cleaning. Cleaning and Removing Limescale Auxiliary washing preparation
Uses advised against	Avoid contact with natural stone or acid sensitive surfaces. Do not use on porous surfaces. Avoid contact with rubber, vinyl, damaged enamel, damaged paintwork, aluminium, copper, bronze, chrome, silver or gold plating. Do not use on fabrics and soft furnishings as permanent colour change may occur. Check compatability on a small area before wider use in unglazed ceramics, natural stone, concrete or sealed wood.
Reason why uses advised against	Acidic product. Will react with acid sensitive surfaces.

1.3. Details of the supplier of the safety data sheet

Manufacturer
The London Oil Refining Company Ltd
Astonish House
Unit 8 Thornbury Ind. Est.
Woodhall Road
Bradford BD3 7AF, UK
Tel: +44 1274 767440 (8pm-4pm Mon-Fri)
www.astonish.co.uk
Astonish Cleaner Europe Ltd
38 Main Street
Swords
Co. Dublin
Republic of Ireland
K67E0A2
Tel: +353 19131585 (8am-4pm Mon-Fri)
www.astonishcleaners.eu

Supplier
The London Oil Refining Company Ltd
Astonish House
Unit 8 Thornbury Ind. Est.
Woodhall Road
Bradford BD3 7AF, UK
Tel: +44 1274 767440 (8am-4pm Mon-Fri)
www.astonish.co.uk

E-mail address info@astonish.co.uk

1.4. Emergency telephone number

Emergency Telephone — UK - Emergency Telephone: +44 (0) 1274 767440 (8am-4pm Mon-Fri).
Alternatively in UK: Contact NHS 111 Telephone 111 (24 hours a day, 7days a week): Website 111.nhs.uk or a doctor

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Serious eye damage/eye irritation	Category 1 - (H318)

2.2. Label elements

Signal word
Warning

Hazard statements
H319 - Causes serious eye irritation

Precautionary statements
P280 - Wear eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children

P103 - Read label before use

Unknown acute toxicity

Unknown aquatic toxicity Contains 0.98161 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
acetic acid … % 64-19-7	2.5 - <5%	(607-002-00-6) 200-580-7	-	Flam. Liq. 3 (H226) Skin Corr. 1A (H314) Eye Dam. 1 (H318)	Eye Irrit. 2 :: 10%<=C<25% Skin Corr. 1A :: C>=90% Skin Corr. 1B :: 25%<=C<90% Skin Irrit. 2 :: 10%<=C<25%	-	-
Alkylpolyglycoside C8-10 68515-73-1	1 - <2.5%	500-220-1	-	Eye Dam. 1 (H318)	-	-	-
Diphenyl ether 101-84-8	<0.025%	202-981-2	-	Aquatic Chronic 2 (H411) Eye Irrit. 2 (H319)	-	-	-
(+)-Bornan-2-one 76-22-2	<0.025%	200-945-0	-	Aquatic Chronic 2 (H411) Acute Tox. 4 (H332) STOT SE 2 (H371) Acute Tox. 4 (H302) Flam. Sol. 2 (H228) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)	-	-	-
Dodecanenitrile 2437-25-4	<0.025%	219-440-1	-	Aquatic Chronic 1 (H410)	-	-	-
turpentine, oil 8006-64-2	<0.025%	(650-002-00-6) 232-350-7	-	Aquatic Chronic 2 (H411) Asp. Tox. 1 (H304) Flam. Liq. 3 (H226) Acute Tox. 4 (H332) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Acute Tox. 4 (H312)	-	-	-

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration >= 0.1% (UK REACH Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Do NOT induce vomiting.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

Symptoms Irritating.

Effects of Exposure See Section 11 for additional Toxicological Information.

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

Note to physicians Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical No information available.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Avoid contact with eyes.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep out of the reach of children.

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	United Kingdom

acetic acid … % 64-19-7	TWA: 10 ppm TWA: 25 mg/m^3 STEL: 20 ppm STEL: 50 mg/m^3
Diphenyl ether 101-84-8	TWA: 1 ppm TWA: 7 mg/m^3 STEL: 2 ppm STEL: 14 mg/m^3
(+)-Bornan-2-one 76-22-2	TWA: 2 ppm TWA: 13 mg/m^3 STEL: 3 ppm STEL: 19 mg/m^3
Dodecanenitrile 2437-25-4	TWA: 5 mg/m^3 STEL: 15 mg/m^3 Sk*
turpentine, oil 8006-64-2	TWA: 100 ppm TWA: 566 mg/m^3 STEL: 150 ppm STEL: 850 mg/m^3

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
acetic acid … % 64-19-7			25 mg/m^3 [5] [6] 25 mg/m^3 [5] [7]
Alkylpolyglycoside C8-10 68515-73-1		595000 mg/kg bw/day [4] [6]	420 mg/m^3 [4] [6]
2,6-dimethyloct-7-en-2-ol 18479-58-8		20.8 mg/kg bw/day [4] [6]	73.5 mg/m^3 [4] [6]
Decanal 112-31-2		7.05 mg/kg bw/day [4] [6] 14.1 mg/kg bw/day [4] [7] 17.62 mg/cm2 [5] [6] 35.24 mg/cm2 [5] [7]	24.86 mg/m^3 [4] [6] 49.71 mg/m^3 [4] [7] 62.14 mg/m^3 [5] [6] 124.28 mg/m^3 [5] [7]
3,7-Dimethyl-2(3),6-Nonadienitrile 61792-11-8		1.5 mg/kg bw/day [4] [6] 3 mg/kg bw/day [4] [7] 3.75 mg/cm2 [5] [6] 7.5 mg/cm2 [5] [7]	5.29 mg/m^3 [4] [6] 10.58 mg/m^3 [4] [7] 13.22 mg/m^3 [5] [6] 26.45 mg/m^3 [5] [7]
3-octanol, 3,7-dimethyl 78-69-3		3.16 mg/kg bw/day [4] [6] 190 µg/cm2 [5] [6]	11.14 mg/m^3 [4] [6]
Diphenyl ether 101-84-8		25 mg/kg bw/day [4] [6]	59 mg/m^3 [4] [6] 7 mg/m^3 [5] [6] 14 mg/m^3 [5] [7]
dl-Citronellol 106-22-9		327.4 mg/kg bw/day [4] [6] 2950 µg/cm2 [5] [7]	161.6 mg/m^3 [4] [6] 10 mg/m^3 [5] [6] 10 mg/m^3 [5] [7]
Linalool 78-70-6		2.5 mg/kg bw/day [4] [6] 5 mg/kg bw/day [4] [7] 3 mg/cm2 [5] [6] 3 mg/cm2 [5] [7]	2.8 mg/m^3 [4] [6] 16.5 mg/m^3 [4] [7]
Citral 5392-40-5		1.7 mg/kg bw/day [4] [6] 140 µg/cm2 [5] [6]	9 mg/m^3 [4] [6]
3,7-dimethyl-6-octen-1-al 106-23-0		1.7 mg/kg bw/day [4] [6] 140 µg/cm2 [5] [6]	9 mg/m^3 [4] [6]
Geraniol 106-24-1		12.5 mg/kg bw/day [4] [6] 11800 µg/cm2 [5] [6]	161.6 mg/m^3 [4] [6]

Chemical name	Oral	Dermal	Inhalation
gamma-Undecalactone 104-67-6		5.38 mg/kg bw/day [4] [6]	19 mg/m^3 [4] [6]
Undecanal 112-44-7		8.3 mg/kg bw/day [4] [6]	59 mg/m^3 [4] [6]
Allyl hexanoate 123-68-2		4.3 mg/kg bw/day [4] [6]	15 mg/m^3 [4] [6]
(+)-Bornan-2-one 76-22-2		10 mg/kg bw/day [4] [6]	17.6316 mg/m^3 [4] [6]
2-Methylundecanal 110-41-8		10.46 mg/kg bw/day [4] [6] 100 mg/kg bw/day [4] [7] 35.7 mg/cm2 [5] [6] 71.43 mg/cm2 [5] [7]	36.89 mg/m^3 [4] [6] 352.63 mg/m^3 [4] [7] 92.21 mg/m^3 [5] [6] 881.58 mg/m^3 [5] [7]
3,7-dimethyl-2,6-octadien-1-ol 106-25-2		1.25 mg/kg bw/day [4] [6]	4.4 mg/m^3 [4] [6]
Dodecanenitrile 2437-25-4		3.98 mg/kg bw/day [4] [6]	14 mg/m^3 [4] [6]
Eucalyptol 470-82-6		2 mg/kg bw/day [4] [6]	7.05 mg/m^3 [4] [6]
Tetrahydro-4-methyl-2-(2-methylprope n-1-yl)pyran 16409-43-1		0.3 mg/kg bw/day [4] [6]	1.2 mg/m^3 [4] [6]
ethyl 2,3-epoxy-3-phenylbutyrate 77-83-8		0.7 mg/kg bw/day [4] [6]	2.45 mg/m^3 [4] [6]

Notes

[4]	Systemic health effects.
[5]	Local health effects.
[6]	Long term.
[7]	Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
acetic acid … % 64-19-7			25 mg/m^3 [5] [6] 25 mg/m^3 [5] [7]
Alkylpolyglycoside C8-10 68515-73-1	35.7 mg/kg bw/day [4] [6]		124 mg/m^3 [4] [6]
2,6-dimethyloct-7-en-2-ol 18479-58-8	12.5 mg/kg bw/day [4] [6]		21.7 mg/m^3 [4] [6]
Decanal 112-31-2	3.52 mg/kg bw/day [4] [6] 7.05 mg/kg bw/day [4] [7]	7.05 mg/kg bw/day [4] [6] 7.05 mg/kg bw/day [4] [7] 8.81 mg/cm2 [5] [6] 17.62 mg/cm2 [5] [7]	6.13 mg/m^3 [4] [6] 12.26 mg/m^3 [4] [7] 15.32 mg/m^3 [5] [6] 30.65 mg/m^3 [5] [7]
3,7-Dimethyl-2(3),6-Nonadienitrile 61792-11-8	0.75 mg/kg bw/day [4] [6] 1.5 mg/kg bw/day [4] [7]	1.5 mg/kg bw/day [4] [6] 1.5 mg/kg bw/day [4] [7] 1.88 mg/cm2 [5] [6] 3.75 mg/cm2 [5] [7]	1.3 mg/m^3 [4] [6] 2.61 mg/m^3 [4] [7] 3.26 mg/m^3 [5] [6] 6.52 mg/m^3 [5] [7]
3-octanol, 3,7-dimethyl 78-69-3	1.58 mg/kg bw/day [4] [6]	190 µg/cm2 [5] [6]	2.75 mg/m^3 [4] [6]
dl-Citronellol 106-22-9	13.8 mg/kg bw/day [4] [6]	2950 µg/cm2 [5] [7]	47.8 mg/m^3 [4] [6] 10 mg/m^3 [5] [6] 10 mg/m^3 [5] [7]
Linalool 78-70-6	0.2 mg/kg bw/day [4] [6] 1.2 mg/kg bw/day [4] [7]	2.5 mg/kg bw/day [4] [6] 2.5 mg/kg bw/day [4] [7] 1.5 mg/cm2 [5] [6] 1.5 mg/cm2 [5] [7]	0.7 mg/m^3 [4] [6] 4.1 mg/m^3 [4] [7]
Citral	0.6 mg/kg bw/day [4] [6]	140 µg/cm2 [5] [6]	2.7 mg/m^3 [4] [6]

Chemical name	Oral	Dermal	Inhalation
5392-40-5			
3,7-dimethyl-6-octen-1-al 106-23-0	0.6 mg/kg bw/day [4] [6]	140 µg/cm2 [5] [6]	2.7 mg/m^3 [4] [6]
Geraniol 106-24-1	13.75 mg/kg bw/day [4] [6]	11800 µg/cm2 [5] [6]	47.8 mg/m^3 [4] [6]
gamma-Undecalactone 104-67-6	2.7 mg/kg bw/day [4] [6]		4.68 mg/m^3 [4] [6]
Undecanal 112-44-7	4.2 mg/kg bw/day [4] [6]		14.5 mg/m^3 [4] [6]
Allyl hexanoate 123-68-2	2.1 mg/kg bw/day [4] [6]		3.7 mg/m^3 [4] [6]
(+)-Bornan-2-one 76-22-2	5 mg/kg bw/day [4] [6]		4.3478 mg/m^3 [4] [6]
2-Methylundecanal 110-41-8	5.23 mg/kg bw/day [4] [6] 25 mg/kg bw/day [4] [7]	50 mg/kg bw/day [4] [6] 50 mg/kg bw/day [4] [7] 17.86 mg/cm2 [5] [6] 35.71 mg/cm2 [5] [7]	9.1 mg/m^3 [4] [6] 86.96 mg/m^3 [4] [7] 22.74 mg/m^3 [5] [6] 217.39 mg/m^3 [5] [7]
3,7-dimethyl-2,6-octadien-1-ol 106-25-2	0.62 mg/kg bw/day [4] [6]		1.09 mg/m^3 [4] [6]
Dodecanenitrile 2437-25-4	1.42 mg/kg bw/day [4] [6]		2.1 mg/m^3 [4] [6]
Eucalyptol 470-82-6	600 mg/kg bw/day [4] [6]		1.74 mg/m^3 [4] [6]
Tetrahydro-4-methyl-2-(2-methylpropen-1-yl)pyran 16409-43-1	0.2 mg/kg bw/day [4] [6]		0.3 mg/m^3 [4] [6]
ethyl 2,3-epoxy-3-phenylbutyrate 77-83-8	0.35 mg/kg bw/day [4] [6]		0.61 mg/m^3 [4] [6]

Notes

[4] Systemic health effects.
[5] Local health effects.
[6] Long term.
[7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
acetic acid … % 64-19-7	3.058 mg/L	30.58 mg/L	0.3058 mg/L		
Alkylpolyglycoside C8-10 68515-73-1	0.176 mg/L	0.27 mg/L	0.0176 mg/L		
2,6-dimethyloct-7-en-2-ol 18479-58-8	27.8 µg/L	0.278 mg/L	2.78 µg/L		
Decanal 112-31-2	1.17 µg/L	11.7 µg/L	0.117 µg/L		
3,7-Dimethyl-2(3),6-Nonadienitrile 61792-11-8	0.0024 mg/L	0.024 mg/L	0.00024 mg/L		
3-octanol, 3,7-dimethyl 78-69-3	0.0089 mg/L	0.089 mg/L	0.00089 mg/L		
dl-Citronellol 106-22-9	0.0024 mg/L	0.024 mg/L	0.00024 mg/L		
Linalool	0.2 mg/L	2 mg/L	0.02 mg/L		

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
78-70-6					
Citral 5392-40-5	0.00678 mg/L	0.0678 mg/L	0.000678 mg/L		
3,7-dimethyl-6-octen-1-al 106-23-0	0.00868 mg/L	0.0868 mg/L	0.00087 mg/L		
Geraniol 106-24-1	0.0108 mg/L	0.108 mg/L	0.00108 mg/L		
gamma-Undecalactone 104-67-6	84 µg/L	58.5 µg/L	8.4 µg/L	5.85 µg/L	
Undecanal 112-44-7	0.0025 mg/L	0.5 mg/L	0.00025 mg/L		
Allyl hexanoate 123-68-2	0.117 µg/L	1.17 µg/L	0.0117 µg/L		
(+)-Bornan-2-one 76-22-2	1.71 µg/L	17.1 µg/L	0.171 µg/L	1.71 µg/L	
2-Methylundecanal 110-41-8	0.66 µg/L	1.8 µg/L	66 ng/L	0.18 µg/L	
3,7-dimethyl-2,6-octadien-1-ol 106-25-2	7.45 µg/L	74.5 µg/L	0.745 µg/L		
Dodecanenitrile 2437-25-4	1.08 µg/L	0.59 µg/L	0.108 µg/L	59 ng/L	
Eucalyptol 470-82-6	57 µg/L	0.57 mg/L	5.7 µg/L		
Tetrahydro-4-methyl-2-(2-methylpropen-1-yl)pyran 16409-43-1	33.2 µg/L	0.332 mg/L	3.32 µg/L		
ethyl 2,3-epoxy-3-phenylbutyrate 77-83-8	0.0084 mg/L	0.084 mg/L	8.4 µg/L		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
acetic acid … % 64-19-7	11.36 mg/kg sediment dw	1.136 mg/kg sediment dw	85 mg/L	0.47 mg/kg soil dw	
Alkylpolyglycoside C8-10 68515-73-1	1.516 mg/kg sediment dw	0.152 mg/kg sediment dw	560 mg/L	0.654 mg/kg soil dw	111.11 mg/kg food
2,6-dimethyloct-7-en-2-ol 18479-58-8	0.594 mg/kg sediment dw	0.0594 mg/kg sediment dw	10 mg/L	0.103 mg/kg soil dw	111 mg/kg food
Decanal 112-31-2	0.0972 mg/kg sediment dw	0.00972 mg/kg sediment dw	3.16 mg/L	0.0187 mg/kg soil dw	313 mg/kg food
3,7-Dimethyl-2(3),6-Nonadienitrile 61792-11-8	0.248 mg/kg sediment dw	0.0248 mg/kg sediment dw	0.9 mg/L	0.0504 mg/kg soil dw	66.6 mg/kg food
3-octanol, 3,7-dimethyl 78-69-3	0.0821 mg/kg sediment dw	0.00821 mg/kg sediment dw	450 mg/L	0.0112 mg/kg soil dw	
dl-Citronellol 106-22-9	0.0256 mg/kg sediment dw	0.00256 mg/kg sediment dw	580 mg/L	0.00371 mg/kg soil dw	
Linalool 78-70-6	2.22 mg/kg sediment dw	0.222 mg/kg sediment dw	10 mg/L	0.327 mg/kg soil dw	7.8 mg/kg food
Citral 5392-40-5	0.125 mg/kg sediment dw	0.0125 mg/kg sediment dw	1.6 mg/L	0.0209 mg/kg soil dw	

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
3,7-dimethyl-6-octen-1-al 106-23-0	0.159 mg/kg sediment dw	0.0159 mg/kg sediment dw	4 mg/L	0.0267 mg/kg soil dw	
Geraniol 106-24-1	0.115 mg/kg sediment dw	0.0115 mg/kg sediment dw	0.7 mg/L	0.0167 mg/kg soil dw	
gamma-Undecalactone 104-67-6	5.341 mg/kg sediment dw	0.534 mg/kg sediment dw	80 mg/L	1.019 mg/kg soil dw	66.7 mg/kg food
Undecanal 112-44-7	0.0389 mg/kg sediment dw	0.00389 mg/kg sediment dw	5.5 mg/L	0.0063 mg/kg soil dw	
Allyl hexanoate 123-68-2	4.46 µg/kg sediment dw	0.446 µg/kg sediment dw	10 mg/L	0.825 µg/kg soil dw	47.56 mg/kg food
(+)-Bornan-2-one 76-22-2	0.139 mg/kg sediment dw	0.0174 mg/kg sediment dw	1 mg/L	0.01326 mg/kg soil dw	
2-Methylundecanal 110-41-8	0.265 mg/kg sediment dw	26.5 µg/kg sediment dw	10 mg/L	52.6 µg/kg soil dw	116 mg/kg food
3,7-dimethyl-2,6-octadien-1-ol 106-25-2	133 µg/kg sediment dw	13.3 µg/kg sediment dw	12.9 mg/L	22.3 µg/kg soil dw	
Dodecanenitrile 2437-25-4	0.208 mg/kg sediment dw	20.8 µg/kg sediment dw	0.00125 mg/L	40.9 µg/kg soil dw	
Eucalyptol 470-82-6	1.425 mg/kg sediment dw	0.1425 mg/kg sediment dw	10 mg/L	0.25 mg/kg soil dw	40 mg/kg food
Tetrahydro-4-methyl-2-(2-methylpropen-1-yl)pyran 16409-43-1	2.29 mg/kg sediment dw	0.229 mg/kg sediment dw	10 mg/L	0.437 mg/kg soil dw	
ethyl 2,3-epoxy-3-phenylbutyrate 77-83-8	0.214 mg/kg sediment dw	0.0214 mg/kg sediment dw	10 mg/L	0.0378 mg/kg soil dw	23.3 mg/kg food

8.2. Exposure controls

Engineering controls No information available.

Personal protective equipment

Eye/face protection Tight sealing safety goggles.

Hand protection Wear suitable gloves.

Skin and body protection No special protective equipment required.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Avoid contact with eyes.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state Liquid

Appearance	Clear colourless liquid
Color	Colourless
Odor	Lemon with vinegar undertones.
Odor threshold	No data available

Property	**Values**		**Remarks • Method**
Melting point / freezing point	No data available		None known
Initial boiling point and boiling range	> 100 °C		Not measured (>100°C)
Flammability	No data available		Does not ignite
Flammability Limit in Air			None known
Upper flammability or explosive limits	No data available		
Lower flammability or explosive limits	No data available		
Flash point	No data available		None known
Autoignition temperature	No data available		None known
Decomposition temperature			None known
pH	2.1 - 3.2		
pH (as aqueous solution)	No data available		None known
Kinematic viscosity	No data available		None known
Dynamic viscosity	Not measured		None known
Water solubility	No data available	Soluble in water	None known
Solubility(ies)	No data available		None known
Partition coefficient	No data available		None known
Vapor pressure	No data available		None known
Relative density	1.003 - 1.015 @ 20°C		None known
Bulk density	No data available		
Liquid Density	No data available		
Relative vapor density	> 1 (Air=1)		None known
Particle characteristics			
Particle Size			
Particle Size Distribution			
Explosive properties	None		
Oxidizing properties	No information available		

9.2. Other information Not measured

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials Strong bases. Strong oxidizing agents.

10.6. Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation No known effect based on information supplied.

Eye contact Causes serious eye irritation.

Skin contact No known effect based on information supplied.

Ingestion No known effect based on information supplied.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Irritating.

Acute toxicity .

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	82,750.00 mg/kg
ATEmix (dermal)	166,666.70 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-vapor)	99,999.00 mg/l
ATEmix (inhalation-dust/mist)	41.20 mg/l

Unknown acute toxicity
Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
acetic acid … %	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h
Alkylpolyglycoside C8-10	-	> 2000 mg/kg (Rabbit)	-
Diphenyl ether	= 2450 mg/kg (Rat)	> 7940 mg/kg (Rabbit)	-
(+)-Bornan-2-one	-	> 2000 mg/kg (Rat)	-
Dodecanenitrile	> 2000 mg/kg (Rat)	-	-
turpentine, oil	= 5760 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 13.7 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation May cause skin irritation.

Serious eye damage/eye irritation Irritating to eyes.

Respiratory or skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Based on available data, the classification criteria are not met.

Reproductive toxicity Based on available data, the classification criteria are not met.

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

Other adverse effects No other adverse effects expected.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

Unknown aquatic toxicity Contains 0.98161 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
acetic acid … %	-	LC50: =79mg/L (96h, Pimephales promelas) LC50: =75mg/L (96h, Lepomis macrochirus)	-	EC50: =65mg/L (48h, Daphnia magna)
Alkylpolyglycoside C8-10	-	LC50: =170mg/L (96h, Danio rerio)	-	-
Diphenyl ether	-	LC50: =4mg/L (96h, Pimephales promelas) LC50: 4 - 7.9mg/L (96h, Pimephales promelas)	-	LC50: 0.11 - 1.1mg/L (48h, Daphnia magna)
Dodecanenitrile	-	LC50: =0.43mg/L (96h, Pimephales promelas)	-	-

12.2. Persistence and degradability

Persistence and degradability None known.

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Component Information

Chemical name	Partition coefficient
acetic acid … %	-0.17
Diphenyl ether	4.21
(+)-Bornan-2-one	2.414

12.4. Mobility in soil

Mobility in soil Not determined.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
acetic acid … %	The substance is not PBT / vPvB
Alkylpolyglycoside C8-10	The substance is not PBT / vPvB
Diphenyl ether	The substance is not PBT / vPvB
(+)-Bornan-2-one	The substance is not PBT / vPvB
Dodecanenitrile	The substance is not PBT / vPvB
turpentine, oil	The substance is not PBT / vPvB

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None

IMDG

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	Not regulated

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Authorizations and/or restrictions on use:
This product does not contain substances subject to authorization (UK REACH - Annex XIV). This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants
Not applicable

Export Notification requirements
Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)
Not applicable

The Ozone-Depleting Substances Regulations 2015
Not applicable

The Biocidal Products Regulations 2001 (as amended)

Chemical name	The Biocidal Products Regulations 2001 (as amended)
acetic acid … % - 64-19-7	Simplified procedure - Category A

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)
Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)
Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment has not been carried out for this mixture

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H226 - Flammable liquid and vapor
H228 - Flammable solid
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H371 - May cause damage to organs
H410 - Very toxic to aquatic life with long lasting effects
H411 - Toxic to aquatic life with long lasting effects

Legend
SVHC: Substances of Very High Concern for Authorization:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

\+ Sensitizers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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Reason for revision Created to comply with UK Reach Regulations (SI 2019/758 as amended) Updated formulation

This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended) Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage,

transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

UK SDS version information - XGHS

UL release:
GHS Revision 7
2022 Q1

United Kingdom Partial process, including GHS Wizard, NO TW

Full text of H-Statements referred to under section 3

H226 - Flammable liquid and vapor H228 - Flammable solid H302 - Harmful if swallowed H304 - May be fatal if swallowed and enters airways H312 - Harmful in contact with skin H314 - Causes severe skin burns and eye damage H315 - Causes skin irritation H317 - May cause an allergic skin reaction H318 - Causes serious eye damage H319 - Causes serious eye irritation H332 - Harmful if inhaled H371 - May cause damage to organs H410 - Very toxic to aquatic life with long lasting effects H411 - Toxic to aquatic life with long lasting effects

Chemical name	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)
acetic acid … %	Flam. Liq. 3 (H226) Skin Corr. 1A (H314) Eye Dam. 1 (H318)	Eye Irrit. 2 :: 10%<=C<25% Skin Corr. 1A :: C>=90% Skin Corr. 1B :: 25%<=C<90% Skin Irrit. 2 :: 10%<=C<25%
Alkylpolyglycoside C8-10	Eye Dam. 1 (H318)	
Diphenyl ether	Aquatic Chronic 2 (H411) Eye Irrit. 2 (H319)	
(+)-Bornan-2-one	Aquatic Chronic 2 (H411) Acute Tox. 4 (H332) STOT SE 2 (H371) Acute Tox. 4 (H302) Flam. Sol. 2 (H228) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)	
Dodecanenitrile	Aquatic Chronic 1 (H410)	
turpentine, oil	Aquatic Chronic 2 (H411) Asp. Tox. 1 (H304) Flam. Liq. 3 (H226) Acute Tox. 4 (H332) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Acute Tox. 4 (H312)	