

1. IDENTIFICATION OF SUBSTANCE AND COMPANY DETAILS

1.1 Product Identifier

Product name:	MemAdvantage™ (0.25mL) / MemAdvantage™ (1mL)
Product number:	MD1-70 / MD1-71
EC No.	See section 3
REACH registration No.	See section 3
CAS No.:	See section 3

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

Identified uses	Research and development
Uses advised against	Not for drug, household or uses other than those identified

1.3 Details of the supplier of the Safety Datasheet

Supplier	Molecular Dimensions Limited
Address	Unit 6 Goodwin Park Willie Snaith Road Newmarket Suffolk CB8 7SQ United Kingdom
Telephone:	+44 (0)1638 561051
Fax	+44 (0)1638 660674
Email address	enquiries@moleculardimensions.com

1.4 Emergency telephone number

Emergency phone number	999
------------------------	-----

2. HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

EUH032	Contact with acids liberates very toxic gas
H225	Highly flammable liquid & vapour
H226	Flammable liquid & vapour
H272	May intensify fire; oxidizer
H300	Fatal if swallowed
H301	Toxic if swallowed
H301+H331	Toxic if swallowed. Toxic if inhaled
H302	Harmful if swallowed
H302+H312	Harmful if swallowed. Harmful in contact with skin
H303	May be harmful if swallowed
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H313	May be harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H316	Causes mild skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H320	Causes eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H333	May be harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H341	Suspected of causing genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H360F	May damage fertility
H360FD	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long-lasting effects

2.2 Label elements

Labelling according to Regulation (EC) No. 1277/2008 [CLP]

Pictogram(s):



Hazard statement(s):

See section 2.1.

Precautionary statement(s):

P201	Obtain special instructions before use
P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking
P220	Keep/Store away from clothing/combustible materials

P260	Do not breathe dust/fume/gas/mist/vapours/spray
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P284	Wear respiratory protection
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P350	IF ON SKIN: Gently wash with plenty of soap and water
P302+P352	IF ON SKIN: Wash with soap and water
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P304+P340+P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+351+P338	One or more of the CLP statements could not be found.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P305+P351+P338+P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician
P308+P313	IF exposed or concerned: Get medical advice/attention
P310	Immediately call a POISON CENTER or doctor/physician
P311	Call a POISON CENTER or doctor/physician
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention
P337+P313	If eye irritation persists get medical advice/attention
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P342+P312	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician if you feel unwell
P362	Take off contaminated clothing and wash before reuse
P403+P233	Store in a well ventilated place. Keep container tightly closed
P405	Store locked up
P501	Dispose of contents/container according to instructions on SDS

2.3 Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

Chemical	EC No.	REACH No.	CAS No.	Concentration	P-code(s)	H-code(s)
1,2,3-Heptanetriol	-	-	103404-57-5	0.2%w/v		
1,3-Propanediol	207-997-3	-	503-63-2	0.2%w/v		H315
1,4-Butanediol	203-786-5	-	110-63-4	0.2%v/v	P261	H302, H336
1,6-Hexanediol	211-074-0	-	629-11-8	0.2%w/v		
1-Butanol	200-751-6	-	71-36-3	7%v/v	P261, P280, P305+P351+P338	H226, H302, H315, H318, H335, H336
2-Mercaptoethanol	200-464-6	-	60-24-2	0.03M	P261, P273, P280, P301+P310, P302+ P350, P305+P351+P338	H301+H331, H310, H315, H317, H318, H373, H410
2-Propanol	200-661-7	-	603-117-00-0	5%v/v	P210, P261, P305+P351+P338	H225, H319, H336
Ammonium citrate tribasic	222-394-5	-	3458-72-8	0.1M	P261, P305+P351+P338	H315, H319, H335
Ammonium sulfate	231-984-1	-	7783-20-2	0.1M		
Anzergent® 3-12	239-002-3	-	14933-08-5	0.03M	P261, P264, P280, P302+P352, P304+P340, P305+P351+P338, P312, P333+P313, P337+P313, P362, P403+P233, P405, P501,	H315, H317, H319, H335, H302, H312
Benzamidine hydrochloride	216-795-4	-	1670-14-0	20%w/v	P261, P305+P351+P338	H315, H319, H335
BIG CHAP, deoxy	-	-	86303-23-3	0.014M	P261, P280, P302+P352, P304+P340, P305+P351+P338, P501	H315, H320, H335
Cadmium chloride hemi(pentahydrate)	233-296-7	-	7790-78-5	0.1M	P201, P260, P273, P284, P301+P310, P310	H301, H330, H340, H350, H360FD, H372, H410
Calcium chloride dihydrate	233-140-8	-	10035-04-8	0.1M	P305+P351+P338	H319
CHAPS	-	-	75621-03-3	0.06M	P280	H316
C-HEGA-11	-	-	864434-16-2	0.0115M	P261, P280, P302+P352, P304+P341, P342+P311	H303, H313, H333
Chromium(III) chloride hexahydrate	233-038-3	-	10060-12-5	0.1M		H302
Cobalt(III) chloride hexahydrate	231-589-4	-	7791-13-1	0.1M	P201, P261, P273, P280, P308+P313, P501	H302, H317, H334, H341, H350i, H360F, H410
Copper(II) chloride	231-210-2	-	7447-39-4	0.1M	P261, P273, P305+P351+P338, P501	H302, H315, H319, H335, H410
CYMAL®-1	-	-	26080-64-6	0.34M		
CYMAL®-2	-	-	260804-65-7	0.12M		
CYMAL®-4	-	-	181165-57-9	0.076M		
CYMAL®-5	-	-	250692-65-0	0.037M		
CYMAL®-6	-	-	228579-27-9	0.0056M		
CYMAL®-7	-	-	349477-49-2	0.0019M		
D-(+)-Trehalose dihydrate	-	-	6138-23-4	30%w/v		
Decyl Maltose Neopentyl Glycol	-	-	-	0.0036M		
Deuterium oxide	-	-	7789-20-0	0.001M		
Dimethyl sulfoxide	200-664-3	-	67-58-5	30%v/v		
DL-Dithiothreitol	222-468-7	-	3483-12-3	0.1M	P261, P305+P351+P338	H302, H315, H319, H335
Ethanol	200-578-6	-	64-17-5	10%v/v	P210	H225
Ethylene glycol	203-473-3	-	107-21-1	30%v/v		H302
Ethylene glycol-bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid	-	-	67-42-5	0.01M		
Ethylenediaminetetraacetic acid	200-449-4	-	60-00-4	0.1M	P305+P351+P338	H319
Fos-Choline-12	-	-	29557-51-5	0.015M		
Fos-Choline-9	-	-	253678-64-7	0.0395M		
Gadolinium(III) chloride hexahydrate	233-386-6	-	13450-84-5	0.1M	P261, P305+P351+P338	H315, H319, H335

Chemical	EC No.	REACH No.	CAS No.	Concentration	P-code(s)	H-code(s)
Glutaric acid	203-817-2	-	110-94-1	0.2%w/v	P305+P351+P338	H319
Glycerol	200-289-5	-	56-81-5	30%v/v		
Gly-Gly-Gly	-	-	556-33-2	0.3M		
HEGA-10	-	-	139361-84-5	0.07M	P261, P280, P302+P352, P304+P341, P342+P311	H303, H313, H333
HEGA-11	-	-	869654-10-4	0.0042M	P261, P280, P302+P352, P304+P341, P342+P312	H303, H313, H334
Hexylene glycol	203-489-0	-	107-41-5	15%v/v	P305+P351+P338	H315, H319
Jeffamine® M-600	-	-	83713-01-3	10%v/v	P280, P305+P351+P338	H302+H312, H315, H319
LAPAO	-	-	-	0.0156M	P261, P280, P302+P352, P304+P341, P501	H302, H315, H318
Lauryl Maltose Neopentyl Glycol	-	-	-	0.001M		
L-Glutathione reduced	-	-	70-18-8	0.1M		
Lithium citrate tribasic tetrahydrate	213-045-8	-	6080-58-6	0.1M	P261, P305+P351+P338	H315, H319, H335
Lithium sulfate	233-820-4	-	10102-25-7	0.1M		H302
Magnesium chloride hexahydrate	-	-	7791-18-6	0.1M		
Magnesium sulfate heptahydrate	-	-	10034-99-8	0.1M		
Manganese(II) chloride tetrahydrate	231-869-6	-	13446-34-9	0.1M		H302
MERPOL® HCS surfactant	-	-	-	5%v/v	P261, P280, P305+P351+P338	H315, H317, H318, H335
n-Decyl-β-D-maltopyranoside	-	-	82494-09-5	0.018M		
n-Decyl-β-D-thiomaltopyranoside	-	-	14565-56-4	0.009M		
n-Dodecyl-N,N-Dimethylamine-N-Oxide	216-700-6	-	1643-20-5	0.015M	P280, P302+P352, P305+P351+P338	H315, H319
n-Dodecyl-N,N-Dimethylglycine	266-368-1	-	683-10-3	0.015M	P261, P280, P302+P352, P305+351+P338	H315, H319, H335
n-Dodecyl-β-D-Maltopyranoside	-	-	69227-93-6	0.0017M	P261, P280, P302+P352	H303, H313, H333
n-Heptyl-β-D-Thioglycopyranoside	-	-	85618-20-8	0.29M		
n-Nonyl-β-D-Glucopyranoside	-	-	69984-73-2	0.065M		
n-Nonyl-β-D-Maltopyranoside	-	-	106402-05-5	0.06M		
n-Octyl-β-D-Glycopyranoside	-	-	29836-26-8	0.19M		
n-Tridecyl-β-D-Maltopyranoside	-	-	93911-12-7	0.00033M		
n-Undecyl-β-D-Maltopyranoside	-	-	253678-67-0	0.0059M		
n-Undecyl-β-D-Thiomaltopyranoside	-	-	148565-57-5	0.0021M		
Octaethylene Glycol Monododecyl Ether	500-195-7	-	68131-39-5	0.0009M		
Octyl Glucose Neopentyl Glycol	-	-	-	0.0102M		
Octyl maltoside, fluorinated	-	-	-	0.0102M		H302, H312, H335
Osmium(III) chloride hydrate	-	-	14996-60-2	0.1M	P261, P280, P301+P310, P305+P351+P338, P311	H301, H311, H315, H319, H331, H335
Poly(ethylene glycol) 400	500-038-2	-	25322-68-3	15%v/v		
Poly(ethylene glycol) 600	500-038-2	-	25322-68-3	15%v/v		
Polyvinylpyrrolidone	-	-	9003-39-8	5%w/v		
Potassium chloride	231-211-8	-	7447-40-7	0.1M		
Potassium fluoride	232-151-5	-	7789-23-3	0.1M	P261, P280, P301+P310, P311	H301, H311, H331
Potassium silicate, anhydrous	-	-	1312-76-1	0.1M	P280, P304+P340+P312, P305+P351+P338+P310	H315, H335, H318
Rubidium chloride	-	-	7791-11-9	0.1M		
Samarium(III) chloride hexahydrate	-	-	13465-55-9	0.1M		
Sodium acetate	204-823-8	-	127-09-3	0.1M		
Sodium azide	247-852-1	-	26628-22-8	0.1M	P264, P273, P301+P310, P501	H300, H410, EUH032
Sodium chloride	231-598-3	-	7647-14-5	0.1M		
Sodium fluoride	231-667-8	-	7681-49-4	0.1M	P301+P310, P305+P351+P338	H301, H315, H319, EUH032
Sodium phosphate dibasic	231-448-7	-	7558-79-4	0.1M		
Sodium phosphoformate tribasic hexahydrate	-	-	34156-56-4	0.08M	P261, P305+P351+P338	H315, H319, H335
Spermidine	204-689-0	-	124-20-9	0.16%w/v	P280, P305+P351+P338, P310	H314
Strontium chloride hexahydrate	233-971-6	-	10025-70-4	0.1M	P280, P305+P351+P338	H318
Sucrose	-	-	57-50-1	40%w/v		
Sucrose monooxalate	250-828-3	-	31835-06-0	0.025M		
Sucrose monododecanoate	246-873-3	-	25339-99-5	0.003M	P261, P280, P302+P352, P304+P341	H303, H313, H333
Taurine	203-483-8	-	107-35-7	0.2%w/v	P261, P305+P351+P338	H315, H319, H335
tert-Butanol	200-889-7	-	75-65-0	10%v/v	P210, P261, P305+P351+P338	H225, H319, H332, H335
Tetraethylene Glycol Monoethyl Ether	231-791-2	-	19327-39-0	0.08M	P261, P280, P302+P352, P305+P351+P338	H315, H319, H225
Triethylammonium phosphate solution	-	-	-	10%v/v		
TRIPAO	222-059-3	-	-	0.045M	P261, P280, P302+P352, P304+P341, P305+P351+P338, P501	H302, H315, H318
Tris(2-carboxyethyl)phosphine hydrochloride	-	-	51805-45-9	0.1M	P280, P305+P351+P338, P310	H314
Zinc nitrate hexahydrate	231-943-8	-	10196-18-6	0.1M	P220, P261, P305+P351+P338	H272, H302, H315, H319, H335
Zinc sulfate heptahydrate	231-793-3	-	7446-20-0	0.1M	P273, P280, P305+P351+P338, P501	H302, H318, H410

4. FIRST AID MEASURES

4.1 Description of first aid measures

General notes

Consult a doctor. Show this safety datasheet to the doctor in attendance.

Following inhalation

Move to fresh air. If not breathing, give artificial respiration. Consult a doctor. Seek immediate medical attention.

Following skin contact

Wash off with soap & water. Consult a doctor. Take off contaminated clothing & shoes immediately.

Following eye contact

Flush eyes with water. Rinse thoroughly for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Consult a doctor. Do NOT induce vomiting. Seek immediate medical attention.

Self-protection for first aider

Always use recommended PPE when treating patient.

4.2 Most important symptoms and effects, both acute and delayed

The most important known effects are detailed in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIRE-FIGHTING METHODS

5.1 Extinguishing media

Use water spray, alcohol resistant foam, dry chemical or carbon dioxide. Use dry chemical powder.

5.2 Special hazards arising from the substance or mixture

Carbon oxides. Sulfur oxides. Nitrogen oxides. Hydrogen chloride gas. Cadmium oxides. Calcium oxides. Emits toxic fumes under fire conditions. Hydrogen sulfide gas. Gadolinium oxides. Lithium oxides. Magnesium oxides. Potassium oxides. Hydrogen fluoride gas. Rubidium oxides. Samarium oxides. Sodium oxides. Phosphorous oxides. Zinc oxides. Silicon oxides.

5.3 Advice for firefighters

Wear breathing apparatus. Use water spray to cool unopened containers. Fight fire remotely due to risk of explosion. Emits toxic fumes under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours. Use personal protective equipment including respiratory protection. Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental precautions

Do not let product enter drains

6.3 Methods and materials for containment and clean up

Use spill kit to contain spillage & use wet brushing to place in a suitable container for disposal. Do not flush with water. Remove all sources of ignition. Evacuate personnel to safe areas.

6.4 Reference to any other sections

For disposal, see section 13

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

For precautions, see section 2.2

7.2 Conditions for safe storage, including any incompatibilities.

Store in cool place. Keep container tightly closed in well-ventilated place. Containers which are opened must be carefully resealed and stored upright to prevent leakage.

7.3 Specific end use

Apart from uses in Section 1.2, no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Chemical	CAS No.	Country	Limit value		Basis
			STEL	TWA	
2-Propanol	603-117-00-0	UK	500 ppm	400 ppm	EH40 WEL - Workplace Exposure Limit
Cadmium chloride hemi(pentahydrate)	7790-78-5	UK		0.025 mg/m ³	EH40 WEL - Workplace Exposure Limit
Chromium(III) chloride hexahydrate	10060-12-5	UK		0.5 mg/m ³	EH40 WEL - Workplace Exposure Limit
Cobalt(II) chloride hexahydrate	7791-13-1	UK		0.1 mg/m ³	EH40 WEL - Workplace Exposure Limit
Ethanol	64-17-5	UK		1000 mg/m ³	EH40 WEL - Workplace Exposure Limit
Ethylene glycol	107-21-1	UK	40 ppm	20 ppm	EH40 WEL - Workplace Exposure Limit
Glycerol	56-81-5	UK		10 mg/m ³	EH40 WEL - Workplace Exposure Limit
Hexylene glycol	107-41-5	UK	25 mg/m ³	25 mg/m ³	EH40 WEL - Workplace Exposure Limit
Manganese(II) chloride tetrahydrate	13446-34-9	UK		0.5 mg/m ³	EH40 WEL - Workplace Exposure Limit
Potassium fluoride	7789-23-3	UK		2.5 ppm	EH40 WEL - Workplace Exposure Limit
Sodium azide	26628-22-8	UK	0.3 mg/m ³	0.1 mg/m ³	EH40 WEL - Workplace Exposure Limit
Sodium fluoride	7681-49-4	UK		2.5 mg/m ³	EH40 WEL - Workplace Exposure Limit
tert-Butanol	75-65-0	UK	150 mg/m ³	100 mg/m ³	EH40 WEL - Workplace Exposure Limit

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Wash hands before work break and at the end of the day

8.2.2 Personal protection

Eye/face protection

Face shield & safety specs.

Skin Protection

Nitrile gloves (splash protection only) and lab coat

Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as CEN (EU) as back up to engineering control

Environmental exposure controls

Do not let product enter drains

9. PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance	Transparent liquid
b) Odour	No data available
c) Odour threshold	No data available
d) pH	No data available
e) Melting point / freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability	No data available
j) Upper / lower flammability or exposure limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	No data available
n) Solubility(ies)	No data available
o) Partition coefficient: n-octanol / water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available

s) Explosive properties	No data available
t) Oxidising properties	No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity	No data available
10.2 Chemical stability	No data available
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	No data available
10.5 Incompatible materials	Strong oxidising agents, strong acids, strong bases
10.6 Hazardous decomposition materials	No data available. In case of fire see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

a) Acute toxicity	No data available
b) Skin corrosion / irritation	No data available
c) Serious eye damage / irritation	No data available
d) Respiratory or skin sensitization	No data available
e) Germ cell mutagenicity	No data available
f) Carcinogenicity	No data available
g) Reproductive toxicity	No data available
h) STOT - single exposure	No data available
i) STOT - repeated exposure	No data available
j) Aspiration hazard	No data available

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

Symptoms

Gastrointestinal disturbance, nausea, headache, vomiting. Drying/cracking of skin, skin irritation. Burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, weakness, unconsciousness. Material is extremely destructive to mucous membranes & upper respiratory tract, eyes & skin. Spasm, inflammation & edema of larynx & bronchi, pneumonitis, pulmonary edema. Central nervous system depression, nausea, headache, vomiting, drowsiness. Overexposure could cause mild, reversible liver effects. Material is irritating to mucous membranes & upper respiratory tract. Burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Material is extremely destructive to tissue of mucous membranes & upper respiratory tract. Capillary damage, headache, cold sweat, weak pulse, kidney & liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, coma, death. Nausea, vomiting, urine discolouration, ataxia, peripheral sensory neuropathy. May cause allergic reaction & flushing in contact with skin. Nausea, headache, fatigue. Nausea, headache, vomiting, central nervous system depression. Central nervous system depression, narcosis, damage to heart. Early symptoms of ingestion similar to drunkenness, leading to nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular, collapse, pulmonary edema. Without treatment, death may occur in 2h to 24h. Long term affects include renal failure, brain and liver damage. Consumption of alcohol may increase toxic effects. Headache, nausea, vomiting. May cause kidney irregularities. Dizziness, procrastination, can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, thyroid disturbances. Central nervous system effects including: blurred vision, sensory loss, slurred speech, ataxia, convulsions. Diarrhoea, vomiting, neuromuscular effects such as tremors, clonus, hyperactive reflexes. Dizziness, confusion, incoordination, unconsciousness. Temporary eye injury. Irritation of skin, dermatitis, allergic reaction. Drying, cracking redness & dermatitis by inhalation. Irritation of mouth, throat, oesophagus, gastrointestinal tract. Cornea injury. Nausea, vomiting, urine discolouration, ataxia, peripheral sensory neuropathy. Salivation, nausea, vomiting, abdominal pain, fever, irregular breathing. Fluoride can cause fatal hypocalcaemia, perforation of nasal septum, calcium deposits in ligaments. Material is extremely destructive to mucous membranes & upper respiratory tract, eyes & skin. Inhalation symptoms include spasm, inflammation & edema of bronchi & larynx. Abdominal, nausea, vomiting. Nausea, headache, vomiting. Hypotensive effect, demyelination of myelinated nerve fibres in central nervous system, testicular damage, blindness, attacks of rigidity, hepatic & cerebral effects. Vomiting, diarrhoea, dehydration, congestion in internal organs. Inflammatory reactions in gastrointestinal tract. Damage to lungs. Vomiting, diarrhoea, abdominal pain. Drying & cracking of skin. Skin irritation. Gastrointestinal irritation, nausea, vomiting, diarrhoea. Fever, nausea, cough, vomiting, weakness. Irritating to respiratory tract. Can cause oxide Phosphorous oxides dermatitis. Metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, nausea followed by fever & chills. Bronchitis/pneumonia with blueish tint to skin, burning sensation, wheezing, laryngitis. Shortness of breath, headache, vomiting, airway resistance, cardiovascular effects, pulmonary edema, congestive heart failure.

12. ECOLOGICAL INFORMATION

12.1 Toxicity	No data available
12.2 Persistence and degradability	No data available
12.3 Bioaccumulative potential	No data available
12.4 Mobility in soil	No data available
12.5 Results of PBT and vPvB assessment	No data available
12.6 Other adverse effects	No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product / packaging disposal

Dispose of packaging as unused product. Offer surplus and non-recyclable solutions to a licensed disposal company.
Observe all EU and local environmental regulations

14. TRANSPORT INFORMATION

14.1 UN number		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
3082		3082		3082		3082		3082	
14.2 UN proper shipping name		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
Environmentally hazardous substance, liquid, n.o.s.		Environmentally hazardous substance, liquid, n.o.s.		Environmentally hazardous substance, liquid, n.o.s.		Environmentally hazardous substance, liquid, n.o.s.		Environmentally hazardous substance, liquid, n.o.s.	
14.3 Transport hazard class(es)		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
9		9		9		9		9	
14.4 Packaging group		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
II		II		II		II		II	
14.5 Environmental hazards		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
Yes		Yes		Yes		Yes		Yes	
14.6 Special precautions for user		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
No data available		No data available		No data available		No data available		No data available	
14.6 Special precautions for user		A.R.D./R.I.D.		I.M.D.G.		I.C.A.O.-T.I.		A.D.N.	
No data available		No data available		No data available		No data available		No data available	

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

No data available.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

16. OTHER INFORMATION

- a) Changes since last revision**
First issue
- b) Key to any abbreviations used**
- | | |
|---------------|---|
| PPE | Personal protective equipment |
| A.R.D./R.I.D. | International Carriage of Dangerous Goods by Road / Rail |
| I.M.D.G. | International Maritime Dangerous Goods |
| I.C.A.O.-T.I. | Technical Instructions for the Safe Transport of Dangerous Goods by Air |
| A.D.N. | International Carriage of Dangerous Goods by Inland Waterways |
| TWA | Time-weighted average |
| STEL | Short-term exposure limit |
- c) References and sources for data**
sigma-aldrich.com
fishersci.co.uk
anatrace.com
- d) Indication of methods used for classification (mixtures only)**
No data available
- e) List of Hazard and Precautionary phrase not listed in full in other sections**
See Section 2.1.
- f) Advice for training**

Disclaimer:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Molecular Dimensions Ltd., shall not be held liable for any damage resulting from handling or from contact with the above product.