1. IDENTIFICATION OF SUBSTANCE AND COMPANY DETAILS

1.1 Product Identifier

Product name:	The BCS Eco Screen / The BCS Screen HT-96 Eco Screen
Product number:	MD1-104-ECO / MD1-105-ECO
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	The Innovation centre 217 Portobello Sheffield S1 4DP United Kingdom
Telephone:	+44 (0)11422 42257
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
H272	May intensify fire; oxidizer
H301	Toxic if swallowed
H302	Harmful if swallowed
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
H330	Fatal if inhaled
H332	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
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long-lasting effects
H412	Harmful 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
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
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P308+P313	IF exposed or concerned: Get medical advice/attention
P310	Immediately call a POISON CENTER or doctor/physician
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)
2-Propanol	200-661-7	-	603-117-00-0	5 - 10 %v/v	P210, P261, P305+P351+P338	H225, H319, H336
ADA	-	-	26239-55-4	0.1M		
Ammonium acetate	211-162-9	-	631-61-8	0.05 - 0.2 M		
Ammonium citrate tribasic	222-394-5	-	3458-72-8	5 - 7 %w/v	P261, P305+P351+P338	H315, H319, H335
Ammonium nitrate	229-347-8	-	6484-52-2	0.15 - 0.2 M	P220, P261, P305+P351+P338	H272, H315, H319, H335
Ammonium sulfate	231-984-1	-	7783-20-2	0.05 - 0.2 M		
Ammonium tartrate dibasic	-	-	3164-29-2	5 - 7 %w/v		
BICINE	-	-	150-25-4	0.1M		
BIS-TRIS	230-237-7	-	6976-37-0	0.1M	P261, P305+P351+P338	H315, H319, H335
BIS-TRIS propane	-	-	64431-96-5	0.1M		
Cadmium chloride hemipentahydrate	233-296-7	-	7790-78-5	0.01M	P201, P260, P273, P284, P301+P310, P310	H301, H330, H340, H350, H360FD, H372, H410
Calcium chloride dihydrate	233-140-8	-	10035-04-8	0.01 - 0.15 M	P305+P351+P338	H319
Citric acid	201-069-1	-	77-92-9	0.1M	P305+P351+P338	H319
Cobalt(II) chloride hexahydrate	231-589-4	-	7791-13-1	0.01M	P201, P261, P273, P280, P308+P313, P501	H302, H317, H334, H341, H350i, H360F, H410
DL-Malic acid	230-022-8	-	6915-15-7	5 - 7 %w/v	P261, P280, P305+P351+P338	H302, H315, H318, H335
Ethylene glycol	203-473-3	-	107-21-1	5 - 10 %v/v		H302
Glycerol	200-289-5	-	56-81-5	2 - 10 %v/v		
HEPES	-	-	7365-45-9	0.1M		
L-Arginine	200-811-1	-	74-79-3	0.05M		
L-Glutamic acid monosodium salt hydrate	-	-	142-47-2	0.05M		
Lithium sulfate	233-820-4	-	10102-25-7	0.05 - 0.2 M		H302
Magnesium acetate tetrahydrate	-	-	16674-78-5	0.08 - 0.15 M		
Magnesium chloride hexahydrate	-	-	7791-18-6	0.02 - 0.2 M		
Magnesium formate dihydrate	-	-	6150-82-9	0.1M		
Magnesium sulfate heptahydrate	-	-	10034-99-8	0.02 - 0.15 M		
MES monohydrate	224-632-3	-	145224-94-8	0.1M	P261, P305+P351+P338	H315, H319, H335
PIPES	-	-	5625-37-6	0.1M		
Poly(ethylene glycol) 1000	500-038-2	-	25322-68-3	14 - 35 %w/v		
Poly(ethylene glycol) 10000	500-038-2	-	25322-68-3	8 - 25 %w/v		
Poly(ethylene glycol) 2000	500-038-2	-	25322-68-3	12 - 30 %w/v		
Poly(ethylene glycol) 3350	500-038-2	-	25322-68-3	12 - 30 %w/v		
Poly(ethylene glycol) 400	500-038-2	-	25322-68-3	14 - 35 %v/v		
Poly(ethylene glycol) 4000	500-038-2	-	25322-68-3	12 - 30 %w/v		
Poly(ethylene glycol) 600	500-038-2	-	25322-68-3	14 - 35 %v/v		
Poly(ethylene glycol) 6000	500-038-2	-	25322-68-3	8 - 25 %w/v		
Poly(ethylene glycol) 8000	500-038-2	-	25322-68-3	8 - 25 %w/v		
Poly(ethylene glycol) methyl ether 500	-	-	9004-74-4	14 - 35 %v/v		
Poly(ethylene glycol) methyl ether 5000	-	-	9004-74-4	12 - 30 %w/v		
Potassium chloride	231-211-8	-	7447-40-7	0.1 - 0.2 M		
Potassium phosphate monobasic	231-913-4	-	7778-77-0	0.1 - 0.2 M		
Potassium sodium tartrate tetrahydrate	-	-	6381-59-5	0.1 - 0.2 M		
Potassium thiocyanate	206-370-1	-	333-20-0	0.1M	P273, P280	H302, H312, H332, H412, EUH032
Rubidium chloride	-	-	7791-11-9	0.1M		
Sodium acetate trihydrate	-	-	6131-90-4	0.075 - 0.1 M		
Sodium bromide	231-599-9	-	7647-15-6	0.075 - 0.1 M		
Sodium chloride	231-598-3	-	7647-14-5	0.1 - 0.3 M		
Sodium citrate tribasic dihydrate	-	-	6132-04-3	0.05 - 0.15 M		
Sodium fluoride	231-667-8	-	7681-49-4	0.05M	P301+P310, P305+P351+P338	H301, H315, H319, EUH032
Sodium formate	205-488-0	-	141-53-7	0.04 - 0.2 M		
Sodium iodide	231-679-3	-	7681-82-5	0.075M	P273, P305+P351+P338	H315, H319, H400
Sodium malonate dibasic monohydrate	-	-	26522-85-0	5 - 7 %w/v		
Sodium phosphate dibasic dihydrate	-	-	10028-24-7	0.1M		
Succinic acid	203-740-4	-	110-15-6	5 - 7 %w/v	P261, P280, P305+P351+P338	H315, H318, H335
Trizma® base	201-064-4	-	77-86-1	0.1M	P261, P305+P351+P338	H315, H319, H335
Zinc acetate dihydrate	209-170-2	-	5970-45-6	0.05 - 0.1 M	P273, P305+P351+P338	H302, H319, H400
Zinc chloride	231-592-0	-	7646-85-7	0.1M	P273, P280, P305+P351+P338, P310, P501	H302, H314, 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.

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

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

Following ingestion
Do NOT induce vomiting. Rinse mouth with water. Consult a doctor.

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. Nitrogen oxides. Sulfur oxides. Hydrogen chloride gas. Cadmium oxides. Calcium oxides. Lithium oxides. Magnesium oxides. Metal oxides. Potassium oxides. Phosphorous oxides. Sodium oxides. Rubidium oxides. Hydrogen bromide gas. Hydrogen fluoride gas. Zinc oxides.

5.3 Advice for firefighters
Wear breathing apparatus. Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment including respiratory protection. Avoid breathing vapours. Use personal protective equipment.

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 hemipentahydrate	7790-78-5	UK		0.025 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
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
Potassium thiocyanate	333-20-0	UK		5 mg/m^3	EH40 WEL - Workplace Exposure Limit
Sodium fluoride	7681-49-4	UK		2.5 mg/m^3	EH40 WEL - Workplace Exposure Limit
Zinc chloride	7646-85-7	UK	2 mg/m^3	1 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

Central nervous system depression, nausea, headache, vomiting, drowsiness. Overexposure could cause mild, reversible liver effects. Vomiting, diarrhoea, damage to tooth enamel, dermatitis. Material is extremely destructive to tissue of mucous membranes & upper respiratory tract. Burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. 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, convul. Diarrhoea, vomiting, neuromuscular effects such as tremors, clonus, hyperactive reflexes. Sedation. Vomiting, diarrhoea, dehydration, congestion in internal organs. Inflammatory reactions in gastrointestinal tract. Damage to lungs. Prolonged exposure to iodides may produce iodism. Symptoms include: skin rash, running nose, headache and irritation of mucous membrane. Severe cases: pimples, boils, hives, blisters, black & blue spots. Iodides readily diffuse across the placenta & can cause neonatal death. Known to cause drug-induced fevers for short periods.

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.	3082	I.M.D.G.	3082	I.C.A.O.-T.I.	3082	A.D.N.	3082

14.2 UN proper shipping name

A.R.D./R.I.D.	Environmentally hazardous substance, liquid, n.o.s.	I.M.D.G.	Environmentally hazardous substance, liquid, n.o.s.
I.C.A.O.-T.I.	Environmentally hazardous substance, liquid, n.o.s.	A.D.N.	Environmentally hazardous substance, liquid, n.o.s.

14.3 Transport hazard class(es)

A.R.D./R.I.D.	9	I.M.D.G.	9	I.C.A.O.-T.I.	9	A.D.N.	9

14.4 Packaging group

A.R.D./R.I.D.	II	I.M.D.G.	II	I.C.A.O.-T.I.	II	A.D.N.	II

14.5 Environmental hazards

A.R.D./R.I.D.	Yes	I.M.D.G.	Yes	I.C.A.O.-T.I.	Yes	A.D.N.	Yes

14.6 Special precautions for user

A.R.D./R.I.D.	No data available	I.M.D.G.	No data available
I.C.A.O.-T.I.	No data available	A.D.N.	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.