MATERIAL SAFETY DATA SHEET

Issuing Date: 31-Jul-2012 **Revision Date:** 31-Jul-2012 **Version** 2

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code(s) 42175
Product Name Stack-Magic ECO-F v2
Product Registration number
Denmark -
Norway -
Sweden -

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

Recommended use Hydraulic Fluid, water based.

Uses advised against Any other purpose.

1.3. Details of the supplier of the safety data sheet

Manufacturer, Importer, Supplier
Houghton Norge AS
Strøket 8
Postboks 284
1372 Asker
Norway
Tel: +47 66900020
Fax: +47 66785000
E-mail: nina.bjorndal@houghton.no

Houghton plc
Beacon Road
Trafford Park
Manchester
M17 1AF
Tel: +44 (0)161 874 5000
E-mail: MSDS@uk.houghtonglobal.com

1.4. Emergency telephone number

Norway	Poisons Information (NO):+ 47 22 591300
United Kingdom	+44 (0) 161 874 5000 (09:00 - 17:00)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

The preparation is classified as dangerous in accordance with Directive 1999/45/EC.

R43 - May cause sensitization by skin contact

R20/22 - Harmful by inhalation and if swallowed
R36/38 - Irritating to eyes and skin

2.2. Label Elements

Symbol(s)
Xn - Harmful
Contains 2,2',2''-(Hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol

R-phrase(s)
R43 - May cause sensitization by skin contact
R20/22 - Harmful by inhalation and if swallowed
R36/38 - Irritating to eyes and skin

S-phrase(s)
S24 - Avoid contact with skin
S37 - Wear suitable gloves

2.3. Other hazards
None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Chemical Name	EC-No	CAS-No	Weight %	Classification (67/548)	Classification (Reg. 1272/2008)	REACH Registration Number
Ethane-1,2-diol	203-473-3	107-21-1	10% - 25%	Xn;R22	Acute Tox. 4 (H302) STOT RE 2 (H373)	01-2119456816-28 -XXXX
2-Aminoethanol	205-483-3	141-43-5	2.5% - 10%	Xn;R20/21/22 C;R34	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Skin Corr. 1B (H314) Acute Tox. 4 (H332)	01-2119486455-28 -xxxx
2,2',2''-(Hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	225-208-0	4719-04-4	2.5% - 10%	Xn;R22 R43 T;R23	Acute Tox. 4 (H302) Skin Sens. 1 (H317) Acute Tox. 3 (H330)	01-2119529226-41 -xxxx
Neutralised 2-Aminoethanol	205-483-3	141-43-5*	2.5% - 10%	Xn;R20/21/22	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332)	01-2119486455-28 -xxxx

For the full text of the R-phrases mentioned in this Section, see Section 16
For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1. Description of first-aid measures

General advice Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Consult a physician.

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. If symptoms persist, call a physician.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. If eye irritation persists, consult a specialist.

Ingestion Rinse mouth. Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention.

Protection of First-aiders Use personal protective equipment.

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

Main Symptoms Itching, rash, Redness, Eye damage/irritation, Breathing difficulties, Gastrointestinal discomfort

4.3. Indication of immediate medical attention and special treatment needed

Notes to physician May cause sensitization of susceptible persons. Treat symptomatically. Ingestion, depending on the dose, can cause i.a. abnormal behaviour, unconsciousness, convulsions, respiratory paralysis, pulmonary oedemas, as well as damages to liver and kidneys and can lead, in the worst case, to death. A quick treatment of an ethylene-glycol intoxication, when necessary with haemodialysis, may reduce the toxical effects. Intravenous ethyl alcohol in sodium bicarbonate solution is an approved antitoxin.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment:: Use water spray, fog, Carbon dioxide, foam or dry chemical.

Extinguishing media which shall not be used for safety reasons
None

5.2. Special hazards arising from the substance or mixture

Special Hazard
Thermal decomposition can lead to release of irritating gases and vapors

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating gases and vapors

5.3. Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin, eyes and clothing. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Advice for non-emergency personnel Material can create slippery conditions

Advice for emergency responders For personal protection see section 8

6.2. Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas, Do not flush into surface water or sanitary sewer system, Prevent further leakage or spillage if safe to do so, Prevent product from entering drains.

6.3. Methods and materials for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Dike to collect large liquid spills.

6.4. Reference to other sections

See Section 8/12/13 for additional information

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke when using this product. Wear personal protective equipment. Do not breathe vapors or spray mist. Use only in area provided with appropriate exhaust ventilation. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions
Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

Incompatible Materials Strong oxidizing agents, Strong acids, Strong bases

7.3. Specific end uses

Specific use(s) Hydraulic Fluid, water based.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical Name	European Union	The United Kingdom	France	Spain
Ethane-1,2-diol	S* TWA 20 ppm TWA 52 mg/m³ STEL 40 ppm STEL 104 mg/m³	STEL: 40 ppm STEL: 104 mg/m³ STEL: 30 mg/m³ TWA: 20 ppm TWA: 52 mg/m³ TWA: 10 mg/m³ Skin	VME: 20 ppm VME: 52 mg/m³ VLCT: 40 ppm VLCT: 104 mg/m³	S* STEL: 40 ppm STEL: 104 mg/m³ TWA: 20 ppm TWA: 52 mg/m³

2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	STEL: 3 ppm STEL: 7.6 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³ Skin	VME: 1 ppm VME: 2.5 mg/m³ VLCT: 3 ppm VLCT: 7.6 mg/m³	S* STEL: 3 ppm STEL: 7.5 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³
Neutralised 2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	STEL: 3 ppm STEL: 7.6 mg/m³ TWA: 1 ppm TWA: 2.5 mg/m³ Skin	VME: 1 ppm VME: 2.5 mg/m³ VLCT: 3 ppm VLCT: 7.6 mg/m³	

Chemical Name	Germany	Italy	Portugal	The Netherlands
Ethane-1,2-diol	MAK: 10 ppm MAK: 26 mg/m³ Ceiling / Peak: 20 ppm Ceiling / Peak: 52 mg/m³ Skin TWA: 10 ppm TWA: 26 mg/m³	TWA: 20 ppm TWA: 52 mg/m³ STEL: 40 ppm STEL: 104 mg/m³ Skin	Ceiling: 100 mg/m³	Skin STEL: 104 mg/m³ TWA: 52 mg/m³ TWA: 10 mg/m³
2-Aminoethanol	MAK: 2 ppm MAK: 5.1 mg/m³ Ceiling / Peak: 4 ppm Ceiling / Peak: 10.2 mg/m³ TWA: 2 ppm TWA: 5.1 mg/m³	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	STEL: 6 ppm TWA: 3 ppm	Skin STEL: 7.6 mg/m³ TWA: 2.5 mg/m³
Neutralised 2-Aminoethanol	MAK: 2 ppm MAK: 5.1 mg/m³ Ceiling / Peak: 4 ppm Ceiling / Peak: 10.2 mg/m³ TWA: 2 ppm TWA: 5.1 mg/m³	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	STEL: 6 ppm TWA: 3 ppm	Skin STEL: 7.6 mg/m³ TWA: 2.5 mg/m³

Chemical Name	Austria	Switzerland	Poland	Ireland
Ethane-1,2-diol	Skin STEL 20 ppm STEL 52 mg/m³ MAK: 10 ppm MAK: 26 mg/m³	Skin STEL: 20 ppm STEL: 52 mg/m³ MAK: 10 ppm MAK: 26 mg/m³	NDSCh: 50 mg/m³ NDS: 15 mg/m³	TWA: 10 mg/m³ TWA: 20 ppm STEL: 40 ppm STEL: 104 mg/m³ Skin
2-Aminoethanol	Skin STEL 3 ppm STEL 7.6 mg/m³ MAK: 1 ppm MAK: 2.5 mg/m³	STEL: 4 ppm STEL: 10 mg/m³ MAK: 2 ppm MAK: 5 mg/m³	NDSCh: 7.5 mg/m³ NDS: 2.5 mg/m³	TWA: 3 ppm TWA: 8 mg/m³ STEL: 6 ppm STEL: 15 mg/m³
Neutralised 2-Aminoethanol	Skin STEL 3 ppm STEL 7.6 mg/m³ MAK: 1 ppm MAK: 2.5 mg/m³	STEL: 4 ppm STEL: 10 mg/m³ MAK: 2 ppm MAK: 5 mg/m³	NDSCh: 7.5 mg/m³ NDS: 2.5 mg/m³	TWA: 3 ppm TWA: 8 mg/m³ STEL: 6 ppm STEL: 15 mg/m³

Chemical Name	Finland	Denmark	Norway	Sweden
Ethane-1,2-diol	TWA: 20 ppm TWA: 50 mg/m³ STEL: 40 ppm STEL: 100 mg/m³ Skin	TWA: 10 ppm TWA: 26 mg/m³ TWA: 10 mg/m³ Skin	Skin Ceiling: 25 ppm STEL: 37.5 ppm	LLV: 10 ppm LLV: 25 mg/m³ H STV: 20 ppm STV: 50 mg/m³
2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ Skin	TWA: 1 ppm TWA: 2.5 mg/m³ Skin STEL: 2 ppm STEL: 5 mg/m³	LLV: 3 ppm LLV: 8 mg/m³ H STV: 6 ppm STV: 15 mg/m³
Neutralised 2-Aminoethanol	TWA: 1 ppm TWA: 2.5 mg/m³ STEL: 3 ppm STEL: 7.6 mg/m³ Skin		TWA: 1 ppm TWA: 2.5 mg/m³ Skin STEL: 2 ppm STEL: 5 mg/m³	

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2. Exposure controls

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye Protection Tightly fitting safety goggles

Hand Protection Protective gloves. Barrier cream. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Skin and body protection Lightweight protective clothing. Apron. Impervious gloves. Long sleeved clothing.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene measures When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Avoid breathing vapors, mist or gas. Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

Thermal hazards None under normal use conditions

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state @20°C liquid **Appearance** Red/Pink Fluorescent

Odor Amine **Odor Threshold** Not applicable

Property	Values	Note
pH	10	
Melting/freezing point	< -17 °C	
Boiling point/boiling range	No information available	
Flash Point	Not applicable	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limits in Air		
upper flammability limit	No information available	
lower flammability limit	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Relative density	1.05	@15.5C
Water Solubility	Miscible	
Solubility in other solvents	No information available	
Partition coefficient: n-octanol/water	Not applicable	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Viscosity, kinematic	2.5 cSt @ 40 °C	ISO 3104 ISO 3105
Explosive properties	Not applicable	
Oxidizing Properties	Not applicable	

Other information

VOC Content No information available

10. STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None under normal use conditions

10.4. Conditions to avoid

Do not freeze

10.5. Incompatible Materials

Strong oxidizing agents, Strong acids, Strong bases

10.6. Hazardous decomposition products

Thermal decomposition can lead to release of irritating gases and vapors

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information - Principle Routes of Exposure

Inhalation Harmful by inhalation

Eye contact Irritating to eyes. If the liquid is splashed into the eye, it can cause reversible irritation and damage.

Skin contact Irritating to skin; May cause sensitization by skin contact. Avoid contact with skin and clothing

Ingestion Harmful if swallowed. Ingestion constitutes the main danger because of the toxicity of ethylene glycol.

Acute toxicity - Product Information

The product is harmful by inhalation and if swallowed

Acute toxicity - Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethane-1,2-diol	4000 mg/kg (Rat)	9530 µL/kg (Rabbit)	-
2-Aminoethanol	1720 mg/kg (Rat)	1 mL/kg (Rabbit) 1025 mg/kg (Rabbit)	-
2,2',2''-(Hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	763 mg/kg (Rat)	4000 mg/kg (Rabbit)	-
Neutralised 2-Aminoethanol	1720 mg/kg (Rat)	1 mL/kg (Rabbit) 1025 mg/kg (Rabbit)	-

Irritation Irritating to eyes and skin.

Corrosivity None known.

Sensitization May cause sensitization by skin contact

Repeated Dose Toxicity None known

Carcinogenicity None known

Mutagenicity None known

Toxicity to Reproduction None known

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Ethane-1,2-diol	6500 - 13000: 96 h Pseudokirchneriella subcapitata mg/L EC50	41000: 96 h Oncorhynchus mykiss mg/L LC50 14-18: 96 h Oncorhynchus mykiss ml/L LC50 static 27540: 96 h Lepomis macrochirus mg/L LC50 static 40761: 96 h Oncorhynchus mykiss mg/L LC50 static 40000-60000: 96 h Pimephales promelas mg/L LC50 static 16000: 96 h Poecilia reticulata mg/L LC50 static	-	46300: 48 h Daphnia magna mg/L EC50
2-Aminoethanol	15: 72 h Desmodesmus subspicatus mg/L EC50	227: 96 h Pimephales promelas mg/L LC50 flow-through 3684: 96 h Brachydanio rerio mg/L LC50 static 300-1000: 96 h Lepomis macrochirus mg/L LC50 static 114-196: 96 h Oncorhynchus mykiss mg/L LC50 static 200: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	-	65: 48 h Daphnia magna mg/L EC50
Neutralised 2-Aminoethanol	15: 72 h Desmodesmus subspicatus mg/L EC50	227: 96 h Pimephales promelas mg/L LC50 flow-through 3684: 96 h Brachydanio rerio mg/L LC50 static 300-1000: 96 h Lepomis macrochirus mg/L LC50 static 114-196: 96 h Oncorhynchus mykiss mg/L LC50 static 200: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	-	65: 48 h Daphnia magna mg/L EC50

12.2. Persistence and degradability

Expected to be biodegradable.

12.3. Bioaccumulative potential

Does not bioaccumulate

Chemical Name	log Pow
2-Aminoethanol	-1.91
2,2',2''-(Hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	-2
Neutralised 2-Aminoethanol	-1.91

12.4. Mobility in soil

Miscible with water

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

None known

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products Dispose of as hazardous waste in compliance with local and national regulations

Special risks and unsuitable means when handling product waste/waste packaging None

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal

Other information According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

14. TRANSPORT INFORMATION

14.1. UN-Number

Not regulated

14.2. UN proper shipping name

Not regulated

14.3. Transport hazard class

Not regulated

14.4. Packing group

Not regulated

14.5. Environmental Hazards

None

14.6. Special precautions for users

None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

IMDG/IMO	Not regulated
ADR/RID	Not regulated
ICAO/IATA	Not regulated

15. REGULATORY INFORMATION

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

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values .

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 .

Take note of Dir 94/33/EC on the protection of young people at work.
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This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 & (EC) No. 1272/2008 & (EC) 1999/45.
Acts of Parliament: The Health and Safety at Work etc. Act 1974. Environment Protection Act 1990
Statutory Instruments: Control of Substances Hazardous to Health Regulations 2002. Chemicals (Hazard Information and Packaging) Regulations 2009
The Carriage of Dangerous Goods Regulations 2009
The Hazardous Waste (England and Wales) Regulations 2005
Workplace exposure limits (EH40)
Regulation on classification, labeling. of hazardous chemicals (2002 changing 2005).Appendix VI to Regulation on classification, labeling etc. of hazardous chemicals (2002 changing 2010), list of hazardous substances (as amended). Guidelines for submission and declaration of hazardous waste (2009).Transport of dangerous goods: ADR, RID, IMDG and IATA. Administrative norms for pollution of the atmosphere, 2009
The classification detailed on this Safety Data Sheet refer to the neat material only. Dilution of the product may reduce the classification.

15.2. Chemical Safety Assessment

No information available

16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
R22 - Harmful if swallowed
R34 - Causes burns
R43 - May cause sensitization by skin contact
R23 - Toxic by inhalation

R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed
R20/22 - Harmful by inhalation and if swallowed
R36/38 - Irritating to eyes and skin

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H330 - Fatal if inhaled
H332 - Harmful if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure if swallowed

Exposure scenario

No information available

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Revision Note	Not applicable.

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.