

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

1.1. Product identifier

Trade name or designation of the mixture	C34™ and C38™ Cement and GR37™ Grout Liquid Component
Registration number	-
Synonyms	None.
SDS number	4025
Issue date	13-April-2016
Version number	01
Revision date	-
Supersedes date	-

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

Identified uses	Bonding of Carbon and Graphite.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier	GrafTech France S.N.C Rue des Garennes CS 10478 F-62226 CALAIS cedex +33-3-2119-1420
Manufacturer	GrafTech International Holdings Inc. or affiliate Suite 300 Park Center I 6100 Oak Tree Boulevard Independence, Ohio 44131 1-216-676-2000
Contact person	Product Responsibility Manager +1-216-676-2304
e-mail	sds@graftech.com

1.4. Emergency telephone number	For Chemical Emergency ONLY, call CHEMTREC at: +(44)-870-8200418 or +1-703-527-3887
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 4	H302 - Harmful if swallowed.
Acute toxicity, dermal	Category 4	H312 - Harmful in contact with skin.
Acute toxicity, inhalation	Category 3	H331 - Toxic if inhaled.
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Carcinogenicity	Category 2	H351 - Suspected of causing cancer.
Specific target organ toxicity - single exposure	Category 3 respiratory tract irritation	H335 - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Category 2 (central nervous system, kidney)	H373 - May cause damage to organs (central nervous system, kidney) through prolonged or repeated exposure.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 3	H412 - Harmful to aquatic life with long lasting effects.
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Hazard summary

Toxic if inhaled. Harmful in contact with skin. Harmful if swallowed. May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer. Causes serious eye irritation. May cause irritation to the respiratory system. Dangerous for the environment if discharged into watercourses.

2.2. Label elements**Label according to Regulation (EC) No. 1272/2008 as amended**

Contains: Furfuryl alcohol

Hazard pictograms

Signal word Danger

Hazard statements

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs (central nervous system, kidney) through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements**Prevention**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist or vapour.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER/doctor.
P311	Call a POISON CENTER/doctor.
P330	Rinse mouth.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Furfuryl alcohol	< 90	98-00-0 202-626-1	-	603-018-00-2	
Classification:	Acute Tox. 4;H302, Acute Tox. 4;H312, Eye Irrit. 2;H319, Acute Tox. 3;H331, STOT SE 3;H335, Carc. 2;H351, STOT RE 2;H373, Aquatic Chronic 3;H412				

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTRE or doctor/physician.

Skin contact Wash off with soap and water. Get medical advice/attention if you feel unwell. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed Narcosis. Dizziness. Nausea, vomiting. Diarrhoea. Behavioural changes. Decrease in motor functions. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Oedema. Prolonged exposure may cause chronic effects.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapour. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see section 10 of the SDS).

7.3. Specific end use(s)

Bonding of Carbon and Graphite.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no-effect level (DNEL)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

8.2. Exposure controls

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

General information

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection

Chemical respirator with organic vapour cartridge and full facepiece.

Skin protection

- Hand protection

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

- Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

Chemical respirator with organic vapour cartridge and full facepiece.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls

Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Liquid.

Form	Liquid.
Colour	Brown.
Odour	Pungent.
Odour threshold	Not applicable.
pH	Not available.
Melting point/freezing point	Not applicable.
Initial boiling point and boiling range	170 °C (338 °F) @ 750 mm Hg
Flash point	73.0 °C (163.4 °F) Open cup
Evaporation rate	No data available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8 (Furfuryl Alcohol)
Flammability limit - upper (%)	16.3 (Furfuryl Alcohol)
Vapour pressure	No data available.
Vapour density	3.4
Relative density	1.1
Solubility(ies)	Soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	No data available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
9.2. Other information	No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.
Information on likely routes of exposure	
Inhalation	Toxic if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	Harmful in contact with skin.
Eye contact	Causes serious eye irritation.
Ingestion	Harmful if swallowed.
Symptoms	Narcosis. Dizziness. Nausea, vomiting. Diarrhoea. Behavioural changes. Decrease in motor functions. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Oedema.
11.1. Information on toxicological effects	
Acute toxicity	Toxic if inhaled. Harmful in contact with skin. Harmful if swallowed. May cause respiratory irritation.
Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory sensitisation	Based on available data, the classification criteria are not met.

Skin sensitisation	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Suspected of causing cancer.
Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	May cause damage to organs (central nervous system, kidney) through prolonged or repeated exposure.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity Harmful to aquatic life with long lasting effects. Based on available data, the classification criteria are not met for hazardous to the aquatic environment, acute hazard.

Components	Species	Test results
Furfuryl alcohol (CAS 98-00-0)		
Aquatic		
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>) 32 mg/l, 96 h

12.2. Persistence and degradability No data is available on the degradability of this product.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow)

Furfuryl alcohol (CAS 98-00-0) 0.28

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil The product is soluble in water.

12.5. Results of PBT and vPvB assessment Not available.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN2874
14.2. UN proper shipping name	Furfuryl alcohol
14.3. Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Hazard No. (ADR)	60
Tunnel restriction code	E

- 14.4. Packing group III
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

RID

- 14.1. UN number UN2874
- 14.2. UN proper shipping name Furfuryl alcohol
- 14.3. Transport hazard class(es)
 - Class 6.1(PGIII)
 - Subsidiary risk -
 - Label(s) 6.1
- 14.4. Packing group III
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

- 14.1. UN number UN2874
- 14.2. UN proper shipping name Furfuryl alcohol
- 14.3. Transport hazard class(es)
 - Class 6.1(PGIII)
 - Subsidiary risk -
 - Label(s) 6.1
- 14.4. Packing group III
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

- 14.1. UN number UN2874
- 14.2. UN proper shipping name Furfuryl alcohol
- 14.3. Transport hazard class(es)
 - Class 6.1(PGIII)
 - Subsidiary risk -
- 14.4. Packing group III
- 14.5. Environmental hazards No.
- ERG Code 6L
- 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

- 14.1. UN number UN2874
- 14.2. UN proper shipping name FURFURYL ALCOHOL
- 14.3. Transport hazard class(es)
 - Class 6.1(PGIII)
 - Subsidiary risk -
- 14.4. Packing group III
- 14.5. Environmental hazards
 - Marine pollutant No.
 - EmS F-A, S-A
- 14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

- 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code Not established.

General information The transportation information provided represents the regulatory transport classification of the product without consideration to packaging, quantity, or modal restrictions and exceptions. It is the user's responsibility to determine the appropriate packaging and modal requirements and/or limitations for the product quantity being shipped.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding, as amended

Furfuryl alcohol (CAS 98-00-0)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Furfuryl alcohol (CAS 98-00-0)

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended

Furfuryl alcohol (CAS 98-00-0)

Directive 94/33/EC on the protection of young people at work, as amended

Furfuryl alcohol (CAS 98-00-0)

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. Pregnant women should not work with the product, if there is the least risk of exposure. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Follow national regulation for work with chemical agents. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

Training information

Follow training instructions when handling this material.

Disclaimer

GRAFTECH INTERNATIONAL HOLDINGS INC. ADVISES THE USERS OF THIS PRODUCT TO STUDY THIS SAFETY DATA SHEET (SDS) AND BECOME AWARE OF PRODUCT HAZARDS AND SAFETY INFORMATION. TO PROMOTE SAFE USE OF THIS PRODUCT, USERS SHOULD NOTIFY THEIR EMPLOYEES, AGENTS AND CONTRACTORS OF THE INFORMATION ON THIS SDS AND ANY PRODUCT HAZARDS AND SAFETY INFORMATION.

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.