

1. Identification

Product identifier C38™ Cement Powder Component

Other means of identification

SDS number 4304

Recommended use Bonding of Carbon and Graphite.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier GrafTech Canada ULC
65 Canal Bank Street
Welland
Ontario L3B5R8
+1 216-676-2000

Manufacturer GrafTech International Holdings Inc. or affiliate
982 Keynote Circle
Brooklyn Heights, Ohio 44131
+1 216-676-2555

Contact person Product Responsibility Manager +1-216-676-2304

E-mail sds@graftech.com

Emergency Phone number For Chemical Emergency ONLY, call CHEMTREC at:
1-800-424-9300, +1-703-527-3887

2. Hazard(s) identification

Physical hazards Combustible dusts Category 1

Health hazards Serious eye damage/eye irritation Category 2

Sensitization, skin Category 1

Carcinogenicity Category 2

Reproductive toxicity Category 1B

Specific target organ toxicity following repeated exposure Category 2 (Lungs)

Environmental hazards Not classified.

Label elements



Signal word Danger

Hazard statement May form combustible dust concentrations in air. May cause an allergic skin reaction. Causes serious eye irritation. Suspected of causing cancer. May damage fertility or the unborn child. May cause damage to organs (Lungs) through prolonged or repeated exposure.

Precautionary statements

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Prevent dust accumulation to minimize explosion hazard. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Do not breathe dust. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Observe good industrial hygiene practices.

Response	IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Graphite	7782-42-5	< 55
Carbon black	1333-86-4	< 25
Phenolic resin	9003-35-4	< 15
Boric oxide	1303-86-2	< 10
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	< 3
Methenamine	100-97-0	< 2

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
Eye contact	Do not rub eyes. 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. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. Coughing. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
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. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). Apply extinguishing media carefully to avoid creating airborne dust. Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	May form combustible dust concentrations in air.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Use only non-sparking tools. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. 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 personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Minimise dust generation and accumulation. Collect dust using a vacuum cleaner equipped with HEPA filter. This product is miscible in water. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Absorb in vermiculite, dry sand or earth and place into containers. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. 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. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Explosion-proof general and local exhaust ventilation. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Boric oxide (CAS 1303-86-2)	TWA	10 mg/m ³	
Carbon black (CAS 1333-86-4)	TWA	3.5 mg/m ³	Inhalable fraction.
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	TWA	5 mg/m ³	Inhalable fraction.
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable fraction.

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value	Form
Boric oxide (CAS 1303-86-2)	TWA	10 mg/m ³	
Carbon black (CAS 1333-86-4)	TWA	3.5 mg/m ³	
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Boric oxide (CAS 1303-86-2)	TWA	10 mg/m ³	
Carbon black (CAS 1333-86-4)	TWA	3 mg/m ³	Inhalable
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable.

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value	Form
Boric oxide (CAS 1303-86-2)	TWA	10 mg/m ³	
Carbon black (CAS 1333-86-4)	TWA	3 mg/m ³	Inhalable fraction.
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	TWA	5 mg/m ³	Inhalable fraction.
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable fraction.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Boric oxide (CAS 1303-86-2)	TWA	10 mg/m ³	
Carbon black (CAS 1333-86-4)	TWA	3 mg/m ³	Inhalable fraction.
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable fraction.
Methenamine (CAS 100-97-0)	STEL	2 mg/m ³	
		0.35 ppm	

Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
Boric oxide (CAS 1303-86-2)	TWA	10 mg/m ³	
Carbon black (CAS 1333-86-4)	TWA	3.5 mg/m ³	
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	STEL	10 mg/m ³	Mist.
	TWA	5 mg/m ³	Mist.
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable dust.

Biological limit values

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

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. 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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. Provide eyewash station. Provide explosion-proof ventilation for high dust concentrations.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

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

Respiratory protection

Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Observe any medical surveillance requirements. When using, do not eat, drink or smoke. 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. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance	Black powder.
Physical state	Solid.
Form	Powder.
Colour	Black.
Odour	Phenol.
Odour threshold	Not available.
pH	Not applicable.
Melting point/freezing point	No data available.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Fine particles may form explosive mixtures with air.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	1
Solubility(ies)	
Solubility (water)	0.1 - 1 Slightly soluble.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	No data available.
Viscosity	Not available.
Other information	
Bulk density	Not applicable.
Explosive properties	Dust may form explosive mixture with air.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Keep away from heat, sparks and open flame. Contact with incompatible materials. Minimise dust generation and accumulation.
Incompatible materials	Strong oxidising agents. Chlorine.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information**Information on likely routes of exposure**

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation. Dust may irritate respiratory system.
Skin contact	Dust or powder may irritate the skin. May cause an allergic skin reaction.

Eye contact	Causes serious eye irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. Coughing. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

Components	Species	Test results
Boric oxide (CAS 1303-86-2)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg (Male and female)
Inhalation		
LC50	Rat	> 2.03 mg/l, 5 Hours
Oral		
LD50	Rat	3450 mg/kg (Male) 3150 mg/kg
Carbon black (CAS 1333-86-4)		
Acute		
Dermal		
LD50	Rabbit	> 3000 mg/kg
Oral		
LD50	Rat	> 8000 mg/kg
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)		
Acute		
Inhalation		
LD50	Rat	2.81 mg/l
Graphite (CAS 7782-42-5)		
Acute		
Oral		
LD50	Rat	> 10000 mg/kg
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory or skin sensitisation		
Canada - Alberta OELs: Irritant		
Boric oxide (CAS 1303-86-2)	Irritant	
Respiratory sensitisation	Not a respiratory sensitiser.	
Skin sensitisation	May cause an allergic skin reaction.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Suspected of causing cancer.	
ACGIH Carcinogens		
Carbon black (CAS 1333-86-4)	A3 Confirmed animal carcinogen with unknown relevance to humans.	
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	A4 Not classifiable as a human carcinogen.	
Canada - Manitoba OELs: carcinogenicity		
Carbon black (CAS 1333-86-4)	Confirmed animal carcinogen with unknown relevance to humans.	
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	Not classifiable as a human carcinogen.	
	Suspected human carcinogen.	

IARC Monographs. Overall Evaluation of Carcinogenicity

Carbon black (CAS 1333-86-4)

2B Possibly carcinogenic to humans.

Distillates (petroleum), hydrotreated light naphthenic
(CAS 64742-53-6)

3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	May damage fertility or the unborn child.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	May cause damage to organs (Lungs) through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test results
Boric oxide (CAS 1303-86-2)			
<i>Acute</i>			
	LC50	Limanda limanda	74 mg/l, 96 hours
Carbon black (CAS 1333-86-4)			
Aquatic			
<i>Acute</i>			
Fish	LC50	Leuciscus idus	>= 1000 mg/l, 96 Hours
Methenamine (CAS 100-97-0)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	29868 - 43390 mg/l, 48 hours
Fish	LC50	Bleak (Alburnus alburnus)	> 10000 mg/l, 96 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	The product is moderately water soluble.
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.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	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.

14. Transport information

TDG
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 16-May-2016
Revision date 24-May-2017
Version No. 02

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.