City of Portland, Oregon - Portland Permitting & Development
1900 SW Fourth Avenue • Portland, Oregon 97201 | 503-823-7300 | www.portland.gov/ppd

Facility Permit Program Deferred Submittal Requirements and Application

Minimum Submittal Requirements:

- ☑ A completed copy of this application.
- ☑ One PDF of plans stamped and signed by a Design Engineer or Architect registered in Oregon. NOTE: If a deferred submittal includes exterior elements, plan views and elevations approved by the Engineer and/or Architect of Record identifying the location must be included in the submittal.
- ☑ One PDF of calculations, if applicable.
- ☑ One PDF of product information, if applicable.
- ☑ **Submit to Email: PPDFPPIntake@portlandoregon.gov**
- ☑ Prior to submitting the deferred submittal, the Engineer of Record and/or Architect of Record responsible for the building shall review the deferred submittal plans and supporting materials and add a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance with the design of the building. The notation shall be made on the deferred submittal drawings. Review stamps on letters of transmission are not acceptable. Exception: the notation is not required on deferred submittals for roof trusses in residential construction when an Engineer or Architect of Record is not involved with the design of the building.

I certify this deferred submittal application meets the minimum submittal requirements as outlined above.

Applicant Signature Ben Patterson **Date** 6/9/2025

Contact Information

Contact name Ben Patterson

Address 2121 NW Thurman

City Portland **State** OR **Zip Code** 97210

Phone 503-577-8049 **Email** ben.patterson@ecpowerslife.com

Value of deferred submittal $500,000 **Issued FPP building permit #** 24-065475-000-00-FA

Job site address 1120 SW 3rd Ave, Portland, OR 97204

Description/Scope of work

Fiber-Reinforced Polymer for shearwall structural reinforcement.

Engineer/Architect of Record for the building information

Name Jesse Emory **Phone** 971-242-8190

Design Engineer for the deferred items

Name Nathan Hoesly **Phone** 971-322-8829

Helpful Information:

Facility Permit Program

Portland Permitting & Development
1900 SW 4th Avenue, Portland, OR 97201
Submit to email:
PPDFPPIntake@portlandoregon.gov

Contact Information

Facility Permit Program main number: 503-832-5996
Email: PPDFPPIntake@portlandoregon.gov
Website: Facility Permit Program (FPP)

EPOXY

Smarter Strengthening Solutions™

CSS V-Wrap™ 770

Epoxy Saturant

DESCRIPTION

CSS V-Wrap 770 is a two-part, 100% solids epoxy for high-strength composite bonding applications. CSS V-Wrap 770 matrix material is combined with CSS V-Wrap carbon and glass fabrics to provide a wet-layup composite for strengthening of structural members. It is formulated to provide high elongation to optimize properties of the CSS V-Wrap composite systems. It provides a long working time for application, with no offensive odor. CSS V-Wrap 770 may be thickened with fumed silica to produce a tack coat/putty or a finishing coat, depending upon the project requirements. CSS V-Wrap 770 contains no Volatile Organic Compounds (VOC) or solvents.

CODE REPORTS AND COMPLIANCE

ICC-ES ESR-4930

MATERIAL PROPERTIES*

Part A & B Properties

Approximate Pot Life	3 to 6 hours at 68°F (20°C)
Color	**Part A:** Clear **Part B:** Clear **Mixed:** Clear
Density	**Part A:** 9.7 lb./gal (1.16 kg/L) **Part B:** 7.9 lb./gal (0.95 kg/L) **Mixed:** 9.17 lb./gal (1.11 kg/L)
Mixing Ratio	100A:41B by volume 100A:33B by weight
Shelf Life	24 months stored in unopened containers at 70°F (21°C)
Storage	Store material in a dry area between 40°F (4°C) and 100°F (38°C) with no exposure to moisture.

Cured Epoxy Properties	Average Values
Tensile Strength (ASTM D638)	8,800 psi (60.7 MPa)
Tensile Modulus (ASTM D638)	400,000 psi (2,760 MPa)
Elongation at Break (ASTM D638)	4.4%
Flexural Strength (ASTM D790)	16,000 psi (110.3 MPa)
Flexural Modulus (ASTM D790)	420,000 psi (2,896 MPa)
Compressive Strength (ASTM D695)	12,200 psi (84.1 MPa)
Compressive Modulus (ASTM D695)	440,000 psi (3,304 MPa)
T_g (ASTM E1640)	187°F (86°C)
VOC Content (ASTM D2369)	0% VOC

* Curing schedule: 72 hours post cure at 140°F (60°C)

MADE IN USA with GLOBAL MATERIALS

PERFORMANCE FEATURES

- ICC-ES ESR-4930 listed product
- UL listed (ul.com/database)
- 100% solvent-free
- Good high / low temperature properties
- High elongation
- NSF/ANSI Standard 61 listed product for drinking water systems

APPLICATIONS

CSS V-Wrap 770 is a multi-use epoxy that performs as a primer, tack coat/putty, and saturating resin for the CSS V-Wrap carbon and glass fiber systems. Fumed silica may be added to thicken the resin. The maximum ratio by volume is 1.5 of fumed silica to 1 part of resin.

PACKAGING

Kit Size	Model No.
4 US gallon (15.1 L)	CV-ES7704KT

HOW TO USE

Surface Preparation
CSS V-Wrap 770 should be applied to substrates that are free of protrusions, dust, oils, and other surface contaminates or bond-inhibiting materials. Substrates should be dry and exhibit an open pore structure.

Application
Apply primer to repair surfaces with a medium nap roller or non-shedding brush. Ensure full saturation of fabric sheets is achieved before installation. Heavier fabrics typically require mechanical saturation. Apply thickened CSS V-Wrap epoxy using trowels.

Basic Application Equipment
Application processes for CSS V-Wrap 770 will require mixing drill, mixing paddle, ¼" nap rollers, steel rollers, paint brushes, trowels and saturator.

Mixing
Combine the contents of CSS V-Wrap 770-A pail and CSS V-Wrap 770-B pail together making sure to scrape all material from the sides of the pail and mix for 3 minutes using a mixer at a speed of 400–600 RPM until uniformly blended. Transfer the mixed epoxy into the other pail and mix for an additional 2 minutes. Mix ratio: by volume 100A:41B, by weight 100A:33B.

Observe Working Time Limitations
Mix no more material than can be applied within the working time. Available work time, temperature and complexity of the application will determine how much material should be mixed at one time. Keep material cool and in shaded area, away from direct sunlight in warm weather. During hot weather, work time can be extended by keeping the material cool before and after mixing or by immersing the pot in ice water.

Maintenance
Periodically inspect the applied material and repair localized areas as needed.

Coverage Rates
As a Primer:

Concrete:	225 $ft.^2$/gal (5.5 m^2/L)
Masonry (Concrete):	125 $ft.^2$/gal (3.0 m^2/L)
Masonry (Clay):	200 $ft.^2$/gal (4.9 m^2/L)

As a Putty/Tack Coat:

Filler:	60 $ft.^2$/gal (1.5 m^2/L)

(Depending on surface roughness)

As Saturant:

CSS V-Wrap C100H / C100HM	80 $ft.^2$/gal (1.9 m^2/L)
CSS V-Wrap C200H / C200HM	60 $ft.^2$/gal (1.5 m^2/L)
CSS V-Wrap C400H / C400HM	40 $ft.^2$/gal (1 m^2/L)
CSS V-Wrap C220B	60 $ft.^2$/gal (1.5 m^2/L)
CSS V-Wrap EG50 / EG50B	60 $ft.^2$/gal (1.5 m^2/L)

Coverage rates may vary based on installation procedure and fabric type. Contact STRUCTURAL TECHNOLOGIES at (410) 859-6502 for coverage rates.

Limitations
Only apply CSS V-Wrap 770 when the ambient temperature is between 40°F and 100°F (4°C to 38°C). Topcoat selection should be based upon requirements for protection from environmental exposures, aesthetics and fire protection/burn characteristics.

Storage
Store in a cool, dry area (40°F and 100°F [4°C to 38°C]) away from direct sunlight, flame or other hazards.

CAUTION

Component "A": Causes skin and serious eye irritation. May cause an allergic skin reaction.

Component "B": CORROSIVE! Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction.

Protective Measures: The use of safety glasses and chemically-resistant gloves is recommended. Use appropriate clothing to minimize skin contact. The use of NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the PEL. Refer to Safety Data Sheets (SDS) available at **strongtie.com/sds** for detailed information.

These products are for professional and industrial use only and are to be installed by trained and qualified applicators. Trained applicators must follow installation instructions.

FIRST AID

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, seek medical advice.

Skin Contact: In case of contact, remove product and immediately wash affected area with plenty of soap and water for at least 5 minutes. Do not apply greases or ointments. Remove contaminated clothing. Clean contaminated clothing with soap and water before re-use. If redness, burning or swelling persists, seek medical advice.

Ingestion: DO NOT INDUCE VOMITING. Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. Seek medical advice. Do not leave victim unattended. If vomiting occurs spontaneously, lay victim on side and keep head lower than waist to prevent aspiration.

Inhalation: If respiratory irritation or distress occurs, remove victim to fresh air. If breathing is difficult, give oxygen. If breathing stops, apply artificial respiration. Seek medical advice.

CLEAN-UP

Environmental Precautions: Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters and soils.

Equipment: Use methyl ethyl ketone or acetone. Observe fire and health precautions when using solvents. Dispose of in accordance with local regulations.

Small Spills: Soak up with an absorbent material, such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.

Large Spills: Approach suspected leaks with caution. Construct a dike or trench to contain material. Soak up with an absorbent material, such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.

Disposal: Dispose of container and unused portions in accordance with local, state and federal regulations. Emptied container may contain product residue and should not be reused.

LIMITED WARRANTY

This product is covered by the Simpson Strong-Tie RPS Product Limited Warranty, which is available at **strongtie.com/limited-warranties** or by calling Simpson Strong-Tie at (800) 999-5099.

1. Identification

Product Identification

Product Identifier: **CSS V-Wrap™ 770 Component A**
Recommended Use: CSS V-Wrap™ 770 is an epoxy primer and saturant for use with the CSS V-Wrap™ fabrics and other CSS V-Wrap™ products.
Use Restrictions: To ensure proper installation use according to package directions. Complete application instructions can be found in Simpson Strong-Tie catalogs or online at strongtie.com.

Company Identification

Company: Simpson Strong-Tie Company Inc.
Address: 5956 W. Las Positas Blvd.
Pleasanton, CA 94588
Phone: 1-800-999-5099
Website: www.strongtie.com
Emergency: 1-800-535-5053 (US/Canada)
1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

CSS V-Wrap™ 770 is a high-strength, high-modulus epoxy resin system to prime and saturate the CSS V-Wrap™ fabrics and other CSS V-Wrap™ products. It is a two-component system. The two parts of the system have been assessed individually according to the Globally Harmonized System (GHS). The mixed product can be assumed to carry the hazards of each component until the product has been fully cured. The final cured produce will uniformly clear to pale amber in color and can be considered nonhazardous. This Safety Data Sheet covers hazards and responses for the safe use and handling of Component A. See the Component B Safety Data Sheet for complete product information.

Component A GHS Classification

Classification according to HazCom2012 (GHS)

Physical Hazards:	Not Classified.		
Health Hazards:	Skin Corrosion/Irritation	Category 2	H315: Causes skin irritation
	Serious Eye Damage/Irritation	Category 2	H319: Causes serious eye irritation
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
Environmental Hazards:	Chronic Aquatic Hazard	Category 2	H411: Toxic to aquatic life with long lasting effects.

Main Symptoms: Irritation of eyes and skin. Symptoms include redness, itching, burning, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin.

GHS Label Elements

Exclamation Point **Environmental Hazard**

Contains: Bisphenol-A Based Epoxy Resin
Signal Word: **WARNING!**
Hazard Statements:
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H317: May cause an allergic skin reaction.
H411: Toxic 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.
P261: Avoid breathing dust, mist or vapor.
P264: Wash thoroughly after handling.
P271: Use only outdoor or in a well-ventilated area.

	P272:	Contaminated clothing should not be allowed out of the workplace.
	P273:	Avoid release to the environment.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P302+P352:	IF ON SKIN: Wash with plenty of water.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P362+P364:	Take off contaminated clothing and wash before reuse.
	P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P391:	Collect spillage.
Storage:	P404+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 regulations.

Supplemental Label Information: None.

Hazards Not Otherwise Classified (HNOC)

None known.

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for Component A are listed below. See the Component B Safety Data Sheet for the rest of the ingredients. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

List of abbreviations and symbols:
Classification: Globally Harmonized System Classifications
The full text for H- phrases is displayed in section 16. All concentrations are in percent by weight unless otherwise noted.

Composition – All concentrations are in percent by weight unless otherwise indicated.

Chemical Name	Weight %	CAS Number	EC Number
Bisphenol-A Based Epoxy Resin	> 70	25068-38-6	500-033-5
Classifications: Skin Irrit. 2: H315, Eye Irrit. 2: H319, Skin Sens. 1: H317, Aquatic Chronic 2: H411			

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If redness, burning, blurred vision, or swelling persists, **consult a physician immediately.**

Skin Contact: Remove contaminated clothing and product, immediately wash affected area with soap and water. Do not apply greases or ointments. If rash or irritation persists **consult a physician.**

Ingestion: Rinse mouth immediately. Do not induce vomiting unless told to do so by a poison control center or doctor. If vomiting occurs keep head low so that stomach contents don't get into the lungs. Never give anything by mouth to an unconscious person. **Consult a physician immediately.**

Inhalation: If breathing is difficult remove patient to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Irritation of eyes and skin. Symptoms include redness, itching, tearing, swelling, and blurred vision. Rash/dermatitis.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.

Additional Information: Do not use water jet as an extinguisher as this will spread the fire.

Hazards during Fire-Fighting: Hazardous decomposition products may occur when materials polymerize at temperatures above 500° F (260°C). Irritating and toxic gases/fumes may be released during a fire. Do not allow run-

off from fire-fighting to enter drains or water courses.

Fire-Fighting Procedures: Use standard firefighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures

Personal Precautions

Non-emergency personnel: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Emergency personnel: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protection.

Clean-Up Methods

Small spills (uncured): Wipe up with absorbent material (e.g. cloth, fleece). Place in leak-proof containers. Seal tightly for proper disposal. Clean surface thoroughly to remove residual contamination. Do NOT use solvents to clean adhesives from skin. Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied.

Large spills (uncured): Stop the flow of material, if this is without risk. Dike far ahead of spill to contain material. Use a non-combustible material like vermiculite, sand or earth to soak up the product. Place in leak-proof containers. Seal tightly for proper disposal. Following product recovery, flush area with water.

Cured Material: Chip or grind off surface. If you are grinding or cutting cured product, ensure good work practice and use of personal protective equipment as needed to control exposure to respirable dust. Take precautionary measures; do not allow dust to build up.

Environmental Precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and Storage

Handling

Mechanical ventilation or local exhaust ventilation is recommended. Keep away from open flames, hot surfaces and sources of ignition. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Do not inhale dust, mist, or vapor. Use only in well-ventilated places. Avoid contact with eyes, skin, and clothing. Pregnant women should not work with this product if there is risk of exposure. Wash thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices. To obtain optimal performance from Simpson Strong-Tie products and to achieve maximum allowable design load, the products must be properly installed and used in accordance with the installation instructions and design limits provided by Simpson Strong-Tie.

Storage

Store in a closed container away from incompatible materials (see Section 10). Keep in original container. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Keep away from heat and sources of ignition. Store in a well-ventilated place. Protect against physical damage. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

Protective Measure: Wear appropriate personal protective equipment.

Eye Protection: Wear chemical splash goggles or safety glasses with side shield. Face shield is recommended where splashing is probable.

Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, or butyl rubber.

Skin and Body Protection: Avoid contact with skin, wear long sleeve shirt/long pants and other clothing as required to minimize skin contact.

Respirator Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, or if discomfort is experienced, an approved respirator should be worn.

General Hygiene: 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.

Engineering Controls

Mechanical ventilation or local exhaust ventilation is recommended, ventilation rates should be matched to conditions 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 and emergency shower.

Exposure Limits

No exposure limits noted for ingredients.

9. Physical and Chemical Properties

Physical State:	Liquid
Form:	Liquid
Color:	Clear
Odor:	Sweet
Odor Threshhold:	N/E
pH:	N/E
Flammability limit – lower %:	N/E
Flammability limit – upper %:	N/E
Vapor Pressure:	N/E
Vapor Density:	N/E
Solubility:	N/E
Freezing/Melting Point:	N/E
Boiling Point:	N/E
Flash Point:	>484°F (251°C)
Evaporation Rate:	N/E
Decomposition Temperature:	N/E
Specific Gravity:	1.16 kg/L (9.68 lbs/gal)
VOC (after cure A+B):	0%
Viscosity:	N/E

10. Stability and Reactivity

Reactivity:	This product is stable and non-reactive under normal conditions.
Chemical Stability:	Stable under normal storage conditions.
Condition to Avoid:	High heat and open flame.
Substances to Avoid:	Oxidizing agents, acids, organic bases, and amines.
Hazardous Reactions:	Hazardous polymerization does not occur.
Decomposition Products:	Carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.
Other Hazards:	CSS V-Wrap™ 770 is a reactive system and will release considerable heat during cure if allowed to puddle or accumulate.

11. Toxicological Information

Likely Routes of Exposure

Ingestion:	Expected to be a low ingestion hazard.
Inhalation:	Prolonged exposure may cause temporary respiratory irritation.
Skin contact:	Skin irritation. May cause sensitization by skin contact.
Eye contact:	Causes serious eye irritation.
Symptoms:	Redness, itching, burning, tearing, swelling, and blurred vision; shortness of breath, discomfort in chest, or coughing. Rash/dermatitis.

Information on Toxicological Effects

Acute Effects

Toxicity: Not expected to be acutely toxic.

Component		Estimate
CSS V-Wrap™ 770 Component A		
	Acute, *Oral,* LD50	> 5000 mg/kg
	Acute, *Dermal*, LD50	> 2000 mg/kg

Skin corrosion/irritation: Causes skin irritation.
Eye damage/eye irritation: Causes serious eye irritation.
Respiratory sensitization: Not a respiratory sensitizer.
Skin sensitization: May cause an allergic skin reaction.
Aspiration hazard: Not expected to be an aspiration hazard.
Specific target organ toxicity:
Single exposure No data available.

Chronic Effects
Germ cell mutagenicity: No data available.
Carcinogenicity: This product is not a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity: No data available.
Specific target organ toxicity:
Repeated exposure No data available.

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with certain pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material.

12. Ecological Information

General Information

Information given is based on data on the components and the ecotoxicology of similar products. CSS V-Wrap™ 770 Component A is classified as toxic to aquatic life with long lasting effects. Avoid release to the environment.

Supporting Data

Component	Species	Test Result
Bisphenol-A Based Epoxy Resin (CAS 25068-38-6)		
Aquatic, Fish, LC50	Salmo gairdneri	1.3 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	2.1 mg/l, 48 hours
Aquatic, Algae, EC50	Algae	> 11 mg/l, 72 hours

Persistence and degradability: No data available.
Bioaccumulative potential: No data available for this product.
Mobility in soil: No data available.

Further Information

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

13. Disposal Consideration

Waste Disposal of Substance: 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 regulations.
Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
Disposal of Cured Product: Chip or grind off surface. Solid material does not need special disposal consideration.

14. Transportation Information

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or national regulations.

UN number: UN3082
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol-A-Epichlorohydrin Resin), 9, III, Marine Pollutant
Transportation Class: 9
Packing Group: III
Environmental Hazard: Yes
Required Labels: 9
ERG Code (IATA): 9L

EmS (IMDG): F-A, S-F

Special Precautions for Users: Read safety instructions, SDS and emergency procedures before handling.

CSS V-Wrap™ 770 Component A is not regulated for ground transportation by the USDOT. Check limited quantity regulations prior to shipping; smaller volumes may qualify for LQ shipping exemptions.

15. Regulatory Information

United States

Federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.
CERCLA Hazardous Substance List (40 CFR 302.4): Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA):

Hazard Categories:				
Immediate	**Delayed**	**Fire**	**Pressure**	**Reactivity**
Yes	No	No	No	No

SARA 302 Extremely hazardous substance: No
SARA 311/312 Hazardous chemical: Yes
SARA 313 (TRI reporting): Not regulated.

US. California Proposition 65:
WARNING: This product can expose you to chemicals which are known to the State of California to cause cancer, reproductive harm, or other birth defects. For more information, go to www.P65Warnings.ca.gov.

Carcinogen / Reproductive Toxin / Mutagen Information

Component	% In Blend (approx.)	IARC Monographs	NTP	ACGIH	Other
Bisphenol-A (CAS 80-05-7)	Trace	---	---	---	CA65 (Reproductive)

IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic
NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen
ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected
CA65 – California Prop 65

Canada

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

International

The product is classified in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. 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.

This product is not subject to or not applicable for any of the following International Regulations; **Stockholm Convention, Rotterdam Convention, Kyoto Protocol, Montreal Protocol, Basel Convention.**

International Inventories

Australia	All components of this product are listed on the Australian Inventory of Chemical Substances (AICS).
Canada	All components of this product are included on the Domestic Substances List (DSL).
China	All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).
Europe	All components of this product are listed on the European Inventory of Existing Commercial Chemical Substances (EINECS) or are exempt from listing.
Japan	All components of this product are listed on the Inventory of Existing and New Chemical Substances (ENCS).

Korea	All components of this product are included on the Existing Chemicals List (ECL).
New Zealand	All components of this product are included on the New Zealand Inventory.
Philippines	All components in this product are listed in the Philippine Inventory of Chemicals and Chemical Substances (PICCS).
United States	All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory or are not required to be listed.

16. Other Information

Date Prepared or Revised: December 2022
Supersedes: New
Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com

Abbreviations

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS No.:	Chemical Abstract Service Registry Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
HPR:	Hazardous Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Disclaimer

This Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

Internal

FOR INTERNAL USE ONLY

A Component CSS V-Wrap™ 770
XCOM3B

1. Identification

Product Identification

Product Identifier: **CSS V-Wrap™ 770 Component B**
Recommended Use: CSS V-Wrap™ 770 is an epoxy primer and saturant for use with the CSS V-Wrap™ fabrics and other CSS V-Wrap™ products.
Use Restrictions: To ensure proper installation use according to package directions. Complete application instructions can be found in Simpson Strong-Tie catalogs or online at strongtie.com.

Company Identification

Company: Simpson Strong-Tie Company Inc.
Address: 5956 W. Las Positas Blvd.
Pleasanton, CA 94588
Phone: 1-800-999-5099
Website: www.strongtie.com
Emergency: 1-800-535-5053 (US/Canada)
1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

CSS V-Wrap™ 770 is a high-strength, high-modulus epoxy resin system to prime and saturate the CSS V-Wrap™ fabrics and other CSS V-Wrap™ products. It is a two-component system. The two parts of the system have been assessed individually according to the Globally Harmonized System (GHS). The mixed product can be assumed to carry the hazards of each component until the product has been fully cured. The final cured produce will uniformly clear to pale amber in color and can be considered nonhazardous. This Safety Data Sheet covers hazards and responses for the safe use and handling of Component B. See the Component A Safety Data Sheet for complete product information.

Component B GHS Classification

Classification according to HazCom2012 (GHS)

Physical Hazards:	Not Classified.		
Health Hazards:	Acute Toxicity, Oral	Category 4	H302: Harmful if swallowed
	Skin Corrosion/Irritation	Category 1	H314: Causes severe skin burns
	Serious Eye Damage/Irritation	Category 1	H318: Causes serious eye damage
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
Environmental Hazards:	Not classified.		

Main Symptoms: Damage to the eyes and skin. Symptoms include burns, redness, itching, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin. May cause severe irritation or burns to the gastrointestinal tract and respiratory system. Long term exposure may cause chronic effects.

GHS Label Elements

Corrosive | Exclamation Point

Contains: Amines
Signal Word: **DANGER!**
Hazard Statements:
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H317: May cause an allergic skin reaction.

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 vapor.
P264: Wash thoroughly after handling.
P272: Contaminated clothing should not be allowed out of the workplace.

	P273:	Avoid release to the environment.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P301+P330+P331:	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P302+P352:	IF ON SKIN: Wash with plenty of water.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P362+P364:	Take off contaminated clothing and wash before reuse.
	P304+P340:	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
Storage:	P404+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 regulations.

Supplemental Label Information: None.

Hazards Not Otherwise Classified (HNOC)

None known.

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for Component B are listed below. See the Component A Safety Data Sheet for the rest of the ingredients. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

List of abbreviations and symbols:
Classification: Globally Harmonized System Classifications
The full text for H- phrases is displayed in section 16. All concentrations are in percent by weight unless otherwise noted.

Composition – All concentrations are in percent by weight unless otherwise indicated.

Chemical Name	Weight %	CAS Number	EC Number
Polyoxypropylenediamine	> 80	9046-10-0	695-873-3
Classifications: Skin Corr. 1B: H314, Eye Corr. 1: H318, Aquatic 3: H402+H412			

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If redness, burning, blurred vision, or swelling persists, **consult a physician immediately.**

Skin Contact: Remove contaminated clothing and product, immediately wash affected area with soap and water. Do not apply greases or ointments. If rash or irritation persists **consult a physician.**

Ingestion: Rinse mouth immediately. Do not induce vomiting unless told to do so by a poison control center or doctor. If vomiting occurs keep head low so that stomach contents don't get into the lungs. Never give anything by mouth to an unconscious person. **Consult a physician immediately.**

Inhalation: If breathing is difficult remove patient to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Corrosive effects. Symptoms include itching, burning, redness, swelling, and blurred vision. May cause temporary blindness and severe eye damage.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.
Additional Information: None known.

Hazards during Fire-Fighting:	Hazardous decomposition products may occur when materials polymerize at temperatures above 500° F (260°C). Irritating and toxic gases/fumes may be released during a fire. Hazardous gases/vapors produced are carbon monoxide, carbon dioxide, oxides of nitrogen, cyanide, aldehydes, and miscellaneous hydrocarbons.
Fire-Fighting Procedures:	Use standard firefighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures

Personal Precautions

Non-emergency personnel: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Emergency personnel: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protection.

Clean-Up Methods

Small spills (uncured):	Wipe up with absorbent material (e.g. cloth, fleece). Place in leak-proof containers. Seal tightly for proper disposal. Clean surface thoroughly to remove residual contamination. Do NOT use solvents to clean adhesives from skin. Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied.
Large spills (uncured):	Stop the flow of material, if this is without risk. Dike far ahead of spill to contain material. Use a non-combustible material like vermiculite, sand or earth to soak up the product. Place in leak-proof containers. Seal tightly for proper disposal. Following product recovery, flush area with water.
Cured Material:	Chip or grind off surface. If you are grinding or cutting cured product, ensure good work practice and use of personal protective equipment as needed to control exposure to respirable dust. Take precautionary measures; do not allow dust to build up.

Environmental Precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and Storage

Handling

Mechanical ventilation or local exhaust ventilation is recommended. Keep away from open flames, hot surfaces and sources of ignition. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Do not inhale dust, mist, or vapor. Use only in well-ventilated places. Avoid contact with eyes, skin, and clothing. Pregnant women should not work with this product if there is risk of exposure. Wash thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices. To obtain optimal performance from Simpson Strong-Tie products and to achieve maximum allowable design load, the products must be properly installed and used in accordance with the installation instructions and design limits provided by Simpson Strong-Tie.

Storage

Store in a closed container away from incompatible materials (see Section 10). Keep in original container. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Keep away from heat and sources of ignition. Protect container from physical damage. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

Protective Measure:	Wear appropriate personal protective equipment.
Eye Protection:	Chemical splash goggles or safety glasses with side shield.
Hand Protection:	Wear chemical-resistant gloves such as: Nitrile, neoprene, or butyl rubber.
Skin and Body Protection:	Wear long sleeve shirt/long pants and other clothing as required to minimize skin contact.
Respirator Protection:	The use of a respirator is not required during normal use of this product. An approved respirator should be worn whenever workplace conditions warrant respirator use.
General Hygiene:	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.

Engineering Controls

Mechanical ventilation or local exhaust ventilation is recommended, ventilation rates should be matched to conditions 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 and emergency shower.

Exposure Limits

No exposure limits noted for ingredients.

9. Physical and Chemical Properties

Physical State:	Liquid
Color:	Clear
Form:	Liquid
Odor:	Ammoniacal
Odor Threshold:	N/E
pH:	N/E
Flammability limit – lower %:	N/E
Flammability limit – upper %:	N/E
Vapor Pressure:	N/E
Vapor Density:	N/E
Solubility:	Slight (<10%)
Freezing/Melting Point:	N/E
Boiling Point:	N/E
Flash Point:	> 200°F
Evaporation Rate:	N/E
Decomposition Temperature:	N/E
Specific Gravity:	7.9 lbs/gal (0.95 kg/L)
VOC (after cure A+B):	0%
Viscosity:	N/E

10. Stability and Reactivity

Reactivity:	This product is stable and non-reactive under normal conditions.
Chemical Stability:	Stable under normal storage conditions.
Condition to Avoid:	High heat and open flame.
Substances to Avoid:	May react vigorously with oxidizing agents and acids.
Hazardous Reactions:	Hazardous polymerization will not occur.
Decomposition Products:	Ammonia when heated. Carbon dioxide, carbon monoxide, oxides of nitrogen and other organic compounds in a fire. Combustion under oxygen-starved conditions may produce nitriles, cyanic acid, isocyanates, cyanogens, nitrosamines, amides and carbamates.
Other Hazards:	CSS V-Wrap™ 770 is a reactive system and will release considerable heat during cure if allowed to puddle or accumulate.

11. Toxicological Information

Likely Routes of Exposure

Ingestion:	Causes digestive tract burns.
Inhalation:	May cause respiratory irritation.
Skin contact:	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact:	Causes serious eye damage.

Information on Toxicological Effects

Acute Effects

Toxicity: Harmful if swallowed.

Component	Estimate
CSS V-Wrap™ 770 Component B Toxicity Estimate	
Acute, *Oral,* LD50	3000 mg/kg
Acute, *Dermal,* LD50	2800 mg/kg

Skin corrosion/irritation: Causes severe skin burns.

Eye damage/eye irritation: Causes serious eye damage.
Respiratory sensitization: No data available.
Skin sensitization: May cause an allergic skin reaction.
Aspiration hazard: No data available.
Specific target organ toxicity:
Single exposure No data available.

Chronic Effects
Germ cell mutagenicity: No data available.
Carcinogenicity: This product is not considered a carcinogen by IARC, NTP, ACGIH, or OSHA.
Reproductive toxicity: No data available.
Specific target organ toxicity:
Repeated exposure No data available.

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material.

12. Ecological Information

General Information

Information given is based on the data on the components and the ecotoxicology of similar products. CSS V-Wrap™ 770 Component B is not environmentally classified. Avoid release to the environment.

Supporting Data

Component		Species	Test Result
Polyoxypropylenediamine (CAS 9046-10-0)			
	NOEC	Algae	0.32 mg/l, 72 hours

Persistence and degradability: No data available.
Bioaccumulative potential: No data available for this product.
Mobility in soil: No data available.

Further Information

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

13. Disposal Consideration

Waste Disposal of Substance: 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 regulations.

Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transportation Information

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or nation regulations.

UN number: UN2735
UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (Polyoxypropylenediamine), 8, II
Transportation Class: 8
Packing Group: II
Environment Hazard: Yes
Required Labels: 8
ERG Code (IATA): 8L
EmS (IMDG): F-A, S-B

Special Precautions for Users: Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory Information

United States

Federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.
CERCLA Hazardous Substance List (40 CFR 302.4) : Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA):

Hazard Categories:				
Immediate	**Delayed**	**Fire**	**Pressure**	**Reactivity**
Yes	Yes	No	No	No

SARA 302 Extremely hazardous substance: No
SARA 311/312 Hazardous chemical: Yes
SARA 313 (TRI reporting): Not regulated.

California Proposition 65:
WARNING: This product can expose you to chemicals which are known to the State of California to cause cancer, reproductive harm, or other birth defects. For more information, go to www.P65Warnings.ca.gov.

Carcinogen / Reproductive Toxin / Mutagen Information					
Component	**% In Blend (approx.)**	**IARC Monographs**	**NTP**	**ACGIH**	**Other**
Propylene Oxide	Trace	2B	ANTICIPATED	A3	CA65 (Carcinogenic)
IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected CA65 – California Prop 65					

Canada

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

International

The product is classified in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

This product is not subject to or not applicable for any of the following International Regulations; **Stockholm Convention, Rotterdam Convention, Kyoto Protocol, Montreal Protocol, Basel Convention.**

International Inventories

Australia	All component of this product are listed on the Australian Inventory of Chemical Substances (AICS).
Canada	All components of this product are included on the Domestic Substances List (DSL).
China	All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).
Europe	One or more components of this product are not included on the European Inventory of Existing Commercial Chemical Substances (EINECS) or are not exempt from listing.
Japan	One or more components in this product are not listed on the Inventory of Existing and New Chemical Substances (ENCS).
Korea	One or more components of this product are not included on the Existing Chemicals List (ECL).
New Zealand	All components of this product are listed on the New Zealand Inventory.
Philippines	All components in this product are listed in the Philippine Inventory of Chemicals and Chemical Substances (PICCS).
United States	All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory or are not required to be listed.

16. Other Information

Date Prepared or Revised: December 2022
Supersedes: New
Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com

Abbreviations

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS No.:	Chemical Abstract Service Registry Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
HPR:	Hazardous Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Full Text of H – Phrases Under Section 3

H412:	Harmful to aquatic life with long lasting effects.

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Internal

FOR INTERNAL USE ONLY

CSS V-Wrap™ 770 Component B:
XCOM3B
XCORR

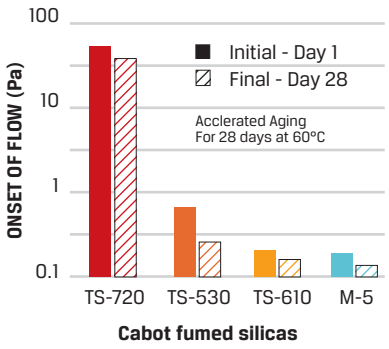
SILICA ADDITIVE

CAB-O-SIL® TS-720 Fumed Silica

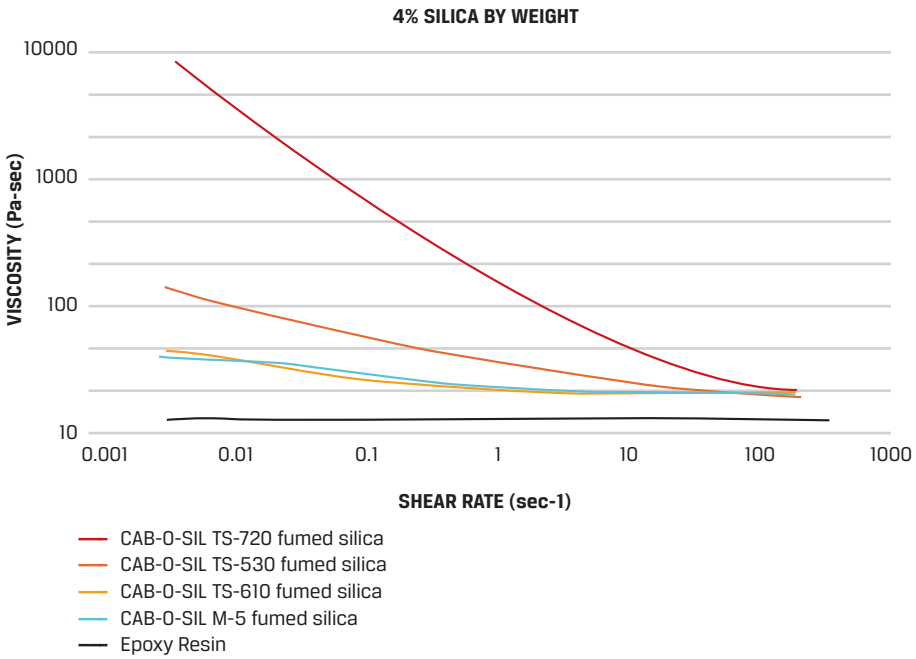
CAB-O-SIL TS-720 fumed silica is a medium surface area fumed silica which has been surface treated with polydimethylsiloxane (PDMS). This surface treatment results in a hydrophobic silica with a very different performance than untreated silica.

CAB-O-SIL TS-720 Treated Silica

In comparison to an untreated silica such as CAB-O-SIL M-5 fumed silica and other treated silicas such as CAB-O-SIL TS-610 and CAB-O-SIL TS-530 fumed silicas, CAB-O-SIL TS-720 fumed silica provides very different performance in polar systems. The charts below demonstrate the efficient thickening and shear-thinning rheology provided by CAB-O-SIL TS-720 fumed silica in an epoxy resin. The sag resistance as measured by onset of flow of CAB-O-SIL TS-720 fumed silica exceeds that of CAB-O-SIL M-5 fumed silica and even the other treated silicas tested. After aging at 60°C for 28 days, the epoxy resin containing CAB-O-SIL TS-720 fumed silica maintained sag resistance (onset of flow) unlike the other silicas.



Fumed Silica in Epoxy Resin



CAB-O-SIL® TS-720 Fumed Silica

Major Applications and Performance Features:

Typical Applications

CAB-O-SIL TS-720 fumed silica is used for rheology control in a wide variety of adhesives, composite and coatings applications:

Epoxy Adhesives and Coatings:
In epoxy adhesives and coatings, CAB-O-SIL TS-720 fumed silica provides good thickening efficiency, sag resistance (or film build) and anti-settling of pigments and fillers. For applications requiring storage stability, CAB-O-SIL TS-720 fumed silica is recommended.

Polyurethane Adhesives and Coatings:
In polyurethane adhesives and coatings, CAB-O-SIL TS-720 fumed silica provides the same efficient, stable rheology control as in epoxy systems. In addition, the hydrophobic surface of CAB-O-SIL TS-720 fumed silica introduces very little moisture into these systems preventing premature cross-linking of moisture cured systems.

Vinyl Ester Laminating Resins and Gel Coats:
While untreated silicas are effective thickeners of unsaturated polyester resins, CAB-O-SIL TS-720 fumed silica is a more efficient, stable rheology control additive for higher polarity systems like vinyl ester laminating resins and gel coats.

Performance Features

CAB-O-SIL TS-720 fumed silica provides the following performance advantages in medium to high polarity systems

- Thickening efficiency
- Sag resistance or high film build
- Anti-settling of pigments and fillers
- Shear-thinning rheological behavior
- Stable rheological performance over time

Packaging Options:

CAB-O-SIL TS-720 fumed silica is packaged in multi-wall Kraft paper bags and flexible intermediate bulk containers (FIBC's). It is available in poly-shrouded units containing 18 x 10 lb. paper bags (net weight 180 lbs.) and 18 x 10 kg paper bags (net weight 180 kg) as well as in 150 kg FIBCs.

Material Safety Data Sheet:

A material safety data sheet (MSDS) for this product may be obtained from your local Cabot representative or can be downloaded from cabotcorp.com

Product Sales Specifications:

Sales specifications for this product may be obtained by contacting a sales or technical service representative at the Cabot Corporation office in your region.

CABOT

cabotcorp.com

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Billerica, MA 01821-7001
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2/2014

SAFETY DATA SHEET

Prepared in accordance with the United States Hazard Communication Standard: 29 CFR 1910.1200 (2012)

Revision date: 02-Jun-2017

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

Product name:	CAB-O-SIL® TS-720 Fumed Silica
Product code:	TS720
Synonyms:	Silicon Dioxide, Synthetic Amorphous Silica, Pyrogenic (Fumed) Amorphous Silica
This SDS is valid for the following grades:	TS720, TS720D.
Recommended use:	Various, Rheological control, Flow agent, Thickening agent, Glossing or matting agent, Reinforcing agent in: Coatings, Adhesives and/or sealants, Inks, Silicone Elastomer, Rubber products, Dispersion, Suspension, Cosmetics, Paints, Hygiene and sanitary products, Other
Restrictions on use:	Not Applicable.

Supplier:

Cabot Corporation
4400 North Point Parkway
Suite 200
Alpharetta, Georgia 30022
United States
Tel: +1 678 297 1300

Cabot Corporation
157 Concord Road
Billerica, MA 01821
UNITED STATES
Tel: 1-978-663-3455
Fax: 1-978-670-6955

Emergency Telephone Number:

24H/7d service
Canada: CANUTEC 1-613-996-6666
GERMANY: CHEMTREC 0800-181-7059
US: CHEMTREC: 1-800-424-9300 or 1-703-527-3887
UK: CHEMTREC: (+44)-870-8200418
International CHEMTREC: +1 703-741-5970 or +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status: This chemical is considered hazardous by the United States 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Combustible dust

Label Elements:

Pictogram:	None
Signal Word:	WARNING
Hazard statements:	May form combustible dust concentrations in air
Precautionary Statements - Prevention	• Keep away from all ignition sources including heat, sparks and flame • Prevent dust accumulations to minimize explosion hazard

Hazards not otherwise classified (HNOC)

Do not expose to temperatures above 150°C. Hazardous products of combustion can include carbon monoxide, carbon dioxide and formaldehyde.

Potential health effects

Principle Routes of Exposure:	Inhalation, Skin Contact, Eye contact
Eye Contact:	May cause mechanical irritation. Avoid contact with eyes.
Skin Contact:	May cause mechanical irritation and skin drying. Avoid contact with skin. No cases of sensitization in humans have been reported.
Inhalation:	Dust may be irritating to respiratory tract. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. See also Section 8.
Ingestion:	Adverse health effects are not expected. See Section 11.
Carcinogenicity:	Does not contain any substances greater than 0.1% listed by IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), OSHA (Occupational Safety and Health Administration), ACGIH (American Conference for Governmental Industrial Hygienists) or EU (European Union). See also Section 11.
Target Organ Effects:	Lungs, See Section 11
Medical Conditions Aggravated by Exposure:	Asthma, Respiratory disorder
Potential Environmental Effects:	None known. See Section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Silicon Dioxide, Synthetic Amorphous Silica, Pyrogenic (Fumed) Amorphous Silica.

Chemical name	CAS No	weight-%	Trade secret
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	100	-

Other Information:
The hyphen (-) means "not applicable"

4. FIRST AID MEASURES

FIRST AID MEASURES

Skin Contact	Wash thoroughly with soap and water. Seek medical attention if symptoms develop.
Eye contact	Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if symptoms develop.
Inhalation	If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.
Ingestion	Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms:	The most important known symptoms and effects are described in Section 2 and/or in Section 11.

Indication of any immediate medical attention and special treatment needed

Note to physicians:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use foam, carbon dioxide (CO2), dry chemical or water spray. A fog is recommended if water is used.
Unsuitable Extinguishing Media:	DO NOT USE high pressure media which could cause formation of a potentially explosible dust-air mixture.
Specific hazards arising from the chemical:	May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.
Hazardous combustion products:	Carbon monoxide (CO). Carbon dioxide (CO2). Formaldehyde.
Protective equipment and precautions for firefighters:	Wear suitable protective equipment. In the event of fire, wear self-contained breathing apparatus.
Risk of Dust Explosion:	Dust may form explosive mixture in air. See also Section 9

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions:	Avoid dust formation. Remove all sources of ignition. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.
For emergency responders:	Use personal protection recommended in Section 8.

Environmental Precautions:

Environmental Precautions:	Contain spilled product on land, if possible. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for containment:	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up:	If the spilled material contains dust or has the potential to create dust, use explosion-proof vacuums and/or cleaning systems suitable for combustible dusts. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by using a brush or compressed air. Dry sweeping is not recommended. Pick up and transfer to properly labelled containers. See Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling:	Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Dust may form explosible mixture in air. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations. Fine dust is capable of penetrating electrical equipment and may cause electrical shorts.

Conditions for safe storage, including any incompatibilities

Storage Conditions:	Keep containers tightly closed in a dry and well-ventilated place. Do not store together with volatile chemicals as they may be adsorbed onto product. Store at ambient conditions. Keep away from heat and sources of ignition. Keep in properly labeled containers. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosible mixture if they are released in the atmosphere in sufficient concentrations.
Incompatible materials:	None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines:	There are no exposure limits identified for this product. Exposure limits for components are stated below.

Amorphous Silica, The regulatory exposure limits are found under the general silica, CAS RN 7631-86-9:	Australia:	2 mg/m³, TWA, Respirable
	Austria MAK	4 mg/m³, TWA, Inhalable fraction
	Finland:	5 mg/m³
	Germany TRGS 900:	4 mg/m³, TWA, Inhalable fraction
	India:	10 mg/m³, TWA
	Ireland:	2.4 mg/m³, TWA, Respirable dust
	Norway:	1.5 mg/m³, TWA, Respirable dust
	Switzerland:	4 mg/m³, TWA
	UK WEL:	6 mg/m³, TWA, Inhalable fraction 2.4 mg/m³, TWA, Respirable fraction
	US OSHA PEL:	6mg/m³ (54 FR2701)
Dust, or Particulates Not Otherwise Specified:	Belgium:	10 mg/m³, TWA, Inhalable 3 mg/m³ TWA, Respirable
	China:	8 mg/m³, TWA 10 mg/m³, STEL
	France:	10 mg/m³, TWA Inhalable dust 5 mg/m³, TWA Respirable dust
	Italy:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	Malaysia:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	Spain:	10 mg/m³, VLA, Inhalable 3 mg/m³, VLA, Respirable
	US ACGIH - PNOS:	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
	US OSHA - PEL:	15 mg/m³, TWA, Total dust 5 mg/m³, TWA, Respirable

NOTE:

In its facilities globally, Cabot Corporation manages silica to the Germany TRGS 900 occupational exposure limit of 4 mg/m³, TWA, Inhalable fraction

MAK: Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)
PEL: Permissible Exposure Limit
PNOS: Particulate Not Otherwise Specified
STEL: Short Term Exposure Limit
TRGS: Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)
TWA: Time Weighted Average
US ACGIH: United States American Conference of Governmental Industrial Hygienists
US OSHA: United States Occupational Safety and Health Administration
VLA: Valore Límite Ambientales (Environmental Limit Value)
WEL: Workplace Exposure Limit

Engineering Controls: Ensure adequate ventilation to maintain exposures below occupational limits. Provide

appropriate local exhaust ventilation at machinery and at places where dust can be generated.

Personal protective equipment [PPE]

Respiratory Protection:	Approved respirator may be necessary if local exhaust ventilation is not adequate.
Hand Protection:	Wear protective gloves to prevent skin drying. Use protective barrier cream before handling the product. Wash hands and other exposed skin with mild soap and water.
Eye/face Protection:	Wear eye/face protection. Wear safety glasses with side shields (or goggles).
Skin and Body Protection:	Wear suitable protective clothing. Wash clothing daily. Work clothing should not be allowed out of the workplace.
Other:	Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.
Environmental exposure controls:	In accordance with all local legislation and permit requirements as applicable for dusts.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical State:	Solid	Odor:	None under normal use. May exhibit odor at high temperature.
Appearance:	Powder	Odor threshold:	0.05 ppm
Color:	White		

Property	Values	**Remarks • Method**
pH:		No information available
Melting point/freezing point:	1700 °C	NIOSH Pocket Guide to Chemical Hazards
Boiling point / boiling range:	2230 °C	NIOSH Pocket Guide to Chemical Hazards
Evaporation Rate:		Not Applicable
Vapor pressure:		Not Applicable
Vapor Density:		Not Applicable
Density:	2.2-2.3 g/cm3	@ 20 °C
Bulk Density:		No information available
Specific Gravity at 20°C:	2.2-2.3	
Water solubility:	Slightly soluble	According to OECD 105
Solubility(ies):		No information available
Partition Coefficient (n-octanol/water):		Not Applicable
Decomposition temperature:	> 400 °C	Bulk Powder test- Diffusion cell
Viscosity:		Not Applicable
Kinematic viscosity:		Not Applicable
Dynamic viscosity:		Not Applicable
Oxidizing Properties:		No oxidizing properties
Softening point:		Not Applicable
VOC content (%):		Not Applicable
% Volatile (by Volume):		Not Applicable

% Volatile (by Weight):		Not Applicable
Surface Tension:		Not Applicable
Explosive properties:		Dust may form explosible mixture in air
Flash Point:		Not Applicable
Flammability (solid, gas):		No information available
Flammability Limit in Air:		No information available
Explosion Limits in Air - Upper (g/m^3):		No information available
Explosion Limits in Air - Lower (g/m^3):	300<MEC<400 g/m^3	ASTM E-1515 (MEC - Minimum Explosible Concentration)
Autoignition Temperature:	< = 750 °C	ASTM E-1491; Dust Cloud. Due to the low density of this product and the volume of the dispersion vessel, testing at a concentration above 600g/m^3 were unable to be performed. For this reason, the MAIT is reported less than or equal to 750°C. Higher concentrations may produce ignitions below 750°C. (MAIT - Minimum Auto-Ignition Temperature)
Minimum Ignition Temperature:	> 450 °C	ASTM E-2021; Dust layer. Neither of the tests conducted at a temperature of 450°C (the upper limit of the apparatus) met the criteria for ignition based on temperature rise. For this reason, the MIT was reported as > 450°C.
Minimum Ignition Energy:	>1 J	ASTM E2019
Ignition Energy:		No information available
Maximum Absolute Explosion Pressure:	5.22 bar	ASTM E-1226 (20-L Sphere Test)
Maximum Rate of Pressure Rise:	140 bar/sec	ASTM E-1226 (20-L Sphere Test)
Burn Velocity:		No information available
Kst Value:	38 bar.meter/second	ASTM E-1226 (20-L Sphere Test)
Dust Explosion Classification:	ST1	Weak Explosion ASTM E-1226;

End point is listed "not applicable" due to the inherent properties of the substance
"No information available" indicates testing has not been performed

10. STABILITY AND REACTIVITY

Reactivity:	Not reactive.
Stability:	Stable under recommended handling and storage conditions. Stable up to >400° C. No exotherm (BulkPowder test - Diffusion cell).
Possibility of hazardous reactions:	None under normal processing.
Hazardous polymerization:	Hazardous polymerization does not occur.
Conditions to avoid:	Do not expose to temperatures above 150°C. Keep away from heat and sources of ignition. Avoid dust formation. May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.
Incompatible materials:	None known.
Explosion data	See also Section 9.
Sensitivity to Mechanical Impact:	None.

Sensitivity to Static Discharge:	Dust may form explosible mixture in air. Avoid dust formation. Do not create a dust cloud by using a brush or compressed air. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.
Hazardous decomposition products:	Carbon monoxide (CO). Carbon dioxide (CO2). Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Information given is based on data obtained from this substance or from similar substances.

Acute toxicity

Oral LD50:	LD50/oral/rat = > 5000 mg/kg. No deaths occurred and no signs of toxicity were seen during the observation periods after single oral administration of the substance. (OECD 423).
Inhalation LC50:	Due to the product's physical characteristics, no suitable testing procedure is available
Dermal LD50:	No data are available on the product itself. Synthetic Amorphous Silica: LD50/dermal/rabbit = > 2000 mg/kg. Very slight transient erythema in one animal. No signs of systemic or organ toxicity (OECD 402).
Skin corrosion/irritation:	Primary irritation index = 0.0 @ 24 hr. Not classified as an irritant (OECD 404)
Serious eye damage/eye irritation:	Not classified as an irritant in rabbit studies (OECD 405). High dust concentrations may cause mechanical irritation.
Sensitization:	No experimental animal data are available. No cases of sensitization in humans have been reported. Contains no known sensitizers. May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.
Mutagenicity:	Not mutagenic in Ames test. Negative in the chromosome aberration test in Chinese hamster ovary (CHO) cells.
Carcinogenicity:	No data are available on the product itself. Synthetic Amorphous Silica: No evidence of carcinogenicity was observed in multiple animal species following repeated oral or inhalation exposure to amorphous silica. Similarly, epidemiology studies show no evidence of carcinogenicity in workers who manufacture amorphous silica. Treated Synthetic Amorphous Silica: No evidence of cancer in rats exposed for 24 months at 100 mg/kg/d (diet). (ECETOC JACC Report 051 - Synthetic Amorphous Silica, September 2006).
Reproductive and Developmental Toxicity:	No effects on reproductive organs have been reported in animal toxicity studies. No developmental effects observed on progeny in dietary study (doses of 0 or 500 mg/kg/d). (ECETOC JACC Report 051 - Synthetic Amorphous Silica, September 2006).
STOT - single exposure:	Specific target organ toxicity is not expected after single oral, single inhalation, or single dermal exposure.

STOT - repeated exposure:	No data are available on the product itself. Treated Synthetic Amorphous Silica: Repeated dose toxicity: oral (rat) , 5 to 8 weeks, no significant treatment-related adverse effects at doses of up to 2000 mg/kg/d. (ECETOC JACC Report 051 - Synthetic Amorphous Silica, September 2006). Synthetic Amorphous Silica: Repeated dose toxicity: oral (rat), 2 weeks to 6 months, no significant treatment-related adverse effects at doses of up to 8% silica in the diet. Repeated dose toxicity: inhalation (rat), 13 weeks, Lowest Observed Effect Level (LOEL) = 1.3 mg/m^3 based on mild reversible effects in the lungs. Repeated dose toxicity: inhalation (rat), 90 days, LOEL = 1 mg/m^3 based on reversible effects in the lungs and effects in the nasal cavity. Based on available data, a STOT-RE classification is not warranted.
Aspiration Hazard:	Based on industrial experience and available data, no aspiration hazard is expected.

12. ECOLOGICAL INFORMATION

Information given is based on data obtained from this substance or from similar substances.

Aquatic Toxicity:	Fish (Brachydanio rerio) LC50 (96 h): > 10,000 mg/l; (Method: OECD 203) No acute toxicity to Daphnia with EL and EL_{50} ranging from >1000 to 10,000 mg/L (OECD 202)

ENVIRONMENTAL FATE

Persistence and degradability	The methods for determining biodegradability are not applicable to inorganic substances
Bioaccumulation	Not expected due to physicochemical properties of the substance.
Mobility:	Not expected to migrate.
Distribution to Environmental Compartments:	No information available.
Other adverse effects:	No information available.

13. DISPOSAL CONSIDERATIONS

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 3 of this SDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations. The person generating waste must determine its proper classification

RCRA:	Unused product is not a hazardous waste under U.S. RCRA, 40 CFR 261.
Unused and Uncontaminated Product:	Product, as supplied, should be disposed of in accordance with the regulations issued by the appropriate federal, state and local authorities. Same consideration should be given to containers and packaging.

14. TRANSPORT INFORMATION

DOT

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ICAO (air)

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IATA

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

IMDG

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

RID

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

ADR

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard Class	Not regulated
Packing group	Not regulated

15. REGULATORY INFORMATION

Hazard Classification

United States - OSHA (29 CFR 1910.1200): Hazardous

Canada - WHMIS Classification (HPR, SOR/2015-17) See Section 2 for Hazard Classification

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the M/SDS contains all the information required by the Hazardous Products Regulations

International Inventories

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory	Complies
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List	Complies
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances	Complies
ENCS - Japan Existing and New Chemical Substances	Complies
IECSC - China Inventory of Existing Chemical Substances	Complies
KECL - Korean Existing and Evaluated Chemical Substances	Complies
PICCS - Philippines Inventory of Chemicals and Chemical Substances	Complies
AICS - Australian Inventory of Chemical Substances	Complies
NZIoC - New Zealand Inventory of Chemicals	Complies
TCSI - Taiwan Chemical Substance Inventory	Complies

US Federal Regulations

TSCA Section 12(b) Export Regulations:
This product does not contain any components that are subject to TSCA 12(b) Export Notification.

SARA Section 302 (40 CFR 355) Extremely Hazardous Substances:
No components are listed as extremely hazardous substances under SARA Section 302.

SARA 311/312 Hazard Categories

Acute Health Hazard	NO
Chronic Health Hazard	NO
Fire hazard	YES
Sudden release of pressure hazard	NO
Reactive Hazard	NO

SARA Section 313 (40 CFR 372) Toxics Release Inventory
Does not contain any of the substances identified under Section 313 as toxic chemicals in excess of the de minimis concentrations necessary to be subject to the supplier notification requirements.

Clean Air Act Amendments of 1990
(CAA, Section 112, 40 CFR 82):
This product does not contain any components listed as a Hazardous Air Pollutant, Flammable Substance, Toxic Substance, or Class 1 or 2 Ozone Depletor

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and

Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product contains a listed component(s) on the Massachusetts Right-to-Know Substances List, New Jersey Right-to-Know List, Pennsylvania Right-to-Know List:. Silica (CAS# 7631-86-9).

16. OTHER INFORMATION

Pharmaceutical Use:
Not permitted

Food Additive Use:
Not permitted

References:
NIOSH Pocket Guide to Chemical Hazards, September 2005. "Silica, amorphous". DHHS (NIOSH) Publication No. 2005-149. National Technical Information Service, Springfield, VA. p. 277

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Prepared by:	Cabot Corporation - Safety, Health and Environmental Affairs
Revision date:	02-Jun-2017

End of Safety Data Sheet

ANCHORS

Smarter Strengthening Solutions™

CSS V-Wrap™ HMCA

Carbon-Fiber Anchor

DESCRIPTION

CSS V-Wrap HMCA is a high-strength, high-modulus unidirectional carbon-fiber anchor designed to be field laminated with CSS V-Wrap 770 epoxy to create a carbon-fiber-reinforced polymer (CFRP) composite anchor for improving force transfer.

MATERIAL PROPERTIES

Typical Data

Storage Conditions	Store dry at 40°F – 90°F (4°C – 32°C)
Color	Black
Shelf Life	10 years

Dry Fiber Properties	
Tensile Strength	790,000 psi (5,440 MPa)
Tensile Modulus	42 x 10^6 psi (289,550 MPa)
Elongation at Break	1.9%

Cured Laminate Properties	Design Values
Tensile Strength	165,000 psi (1,138 MPa)
Modulus of Elasticity	15.0 x 10^6 psi (103,400 MPa)
Elongation at Break	1.1%

MADE IN USA with GLOBAL MATERIALS

PERFORMANCE FEATURES

- Manufactured using ICC-approved raw materials
- High tensile modulus and strength
- Lightweight
- Noncorrosive
- Flexible
- Various finish options

APPLICATIONS

The CSS V-Wrap HMCA carbon-fiber anchor is combined with CSS V-Wrap epoxies and can be used as a standalone reinforcement or to improve end details and anchorage of various CSS V-Wrap designs.

- Load increases
- Seismic strengthening
- Repair of structural elements
- Change in structural system
- Design or construction defects

PACKAGING

Custom anchor lengths and diameters are available in diameters ranging from 0.375" to 1.5" (9 mm to 37 mm) in ⅛" increments.

HOW TO USE

Design

The CSS V-Wrap HMCA carbon-fiber anchors shall be designed to meet specific design criteria. The criteria for each project is dictated by the Engineer of Record and any relevant building codes and/or guidelines.

Surface Preparation

Surfaces to receive CSS V-Wrap HMCA must be clean and sound. They must be dry and free of frost. All dust, laitance, grease, curing compounds, waxes, deteriorated materials and other bond-inhibiting materials must be removed from the surface prior to application. Existing uneven surfaces must be filled with appropriate epoxy putty or repair mortar. Use abrasive blasting, pressure washing, shotblasting, grinding or other approved mechanical means to achieve an open-pore texture with a concrete surface profile of not less than CSP-3 (ICRI). In certain applications and at the engineer's discretion, the bond between the substrate and the fabric may be determined to be noncritical (such as in column confinement applications). The adhesive bond strength of the concrete may be verified after surface preparation by random pull-off testing (ASTM C1583) at the discretion of the engineer. Minimum tensile strength of 200 psi must be achieved for concrete.

Drilled Hole Preparation

Drilled hole diameter shall be either ⅛" or ¼" larger than the nominal diameter of the HMCA. Hole diameter will be indicated on the approved drawings.

Round the top edge of the drilled hole using router bits to specified radius. Using clean, compressed air, blow out any remaining debris for four seconds, then clean with the appropriate sized Simpson Strong-Tie ETB brush for a minimum of four cycles, and again blowing out any remaining debris for another four seconds with compressed air.

Application

Manually saturate the anchor and ensure full fiber saturation is achieved. Install the saturated anchor in accordance with the approved project drawings and specifications. Refer to the CSS V-Wrap 770 Epoxy Saturant Technical Data Sheet for all information on the approved epoxy.

Limitations

Minimum application temperature is 40°F (4°C).

Storage

Store material in a cool, dark space. Low humidity is recommended. Store at 40°F to 90°F (4°C to 32°C). Avoid freezing. Avoid moisture and water contamination.

CAUTION

Protective Measures: The use of safety glasses, chemical-resistant gloves and appropriate clothing to minimize skin contact is recommended. The use of a NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the PEL. Refer to Safety Data Sheets (SDS) available at **strongtie.com/sds** for detailed information.

FIRST AID

Skin: Wash fibers off skin with water and soap. If fibers are embedded in the skin, remove with tweezers. Discard clothing that may contain embedded fibers. Seek medical advice if exposure results in adverse effects.

Eyes: Immediately flush with a continuous water stream for at least 20 minutes. Washing immediately after exposure is expected to be effective in preventing damage to the eyes. Seek medical advice.

Inhalation: If there is inhalation exposure to the fibers of this product, remove source of exposure and move affected person to fresh air. If not breathing, give artificial respiration. If there is breathing difficulty, give oxygen. Seek medical advice for any respiratory problems.

Ingestion: Not expected to occur since ingestion is not a likely route of exposure for this product. If ingestion does occur, DO NOT INDUCE VOMITING. Nothing by mouth if unconscious. Seek medical advice.

CLEAN-UP

Spill/Release and Cleanup Procedures: In case of spill, collect (e.g., sweep up, vacuum, etc.) spilled material and either reuse or dispose of properly. Chopped or milled carbon-fibers may be slippery if spilled, posing an accident risk. Wear personal protective equipment as described in the SDS during cleanup activities.

LIMITED WARRANTY

This product is covered by the Simpson Strong-Tie RPS Product Limited Warranty, which is available at **strongtie.com/limited-warranties** or by calling Simpson Strong-Tie at (800) 999-5099.

CSS V-Wrap™ HMCA
SAFETY DATA SHEET

1. Identification

Product Identification

Product Identifier: **CSS V-Wrap™ HMCA**

Recommended Use: CSS V-Wrap™ HMCA is a Carbon Fiber Anchor that is laminated with CV-770 to create a composite anchor used in accordance with CSS V-Wrap Fabrics.

Use Restrictions: Tampering with product can compromise the integrity of the product and create health hazards.

Company Identification

Company: Simpson Strong-Tie Company Inc.

Address: 5956 W. Las Positas Blvd.
Pleasanton, CA 94588

Phone: 1-800-999-5099

Website: www.strongtie.com

Emergency: 1-800-535-5053 (US/Canada)
1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

CSS V-Wrap™ Carbon Anchors are carbon fiber anchors for strengthening and retrofitting applications, designed to be laminated with an epoxy resin (CV-770). As defined in the OSHA Hazard Communication Standard, 29 CFR 1910.1200, this product is considered an article and does not require an SDS. Although these products are not subject to the OSHA Standard or GHS labeling elements, Simpson Strong-Tie would like to disclose as much health and safety information as possible to ensure that this product is handled and used properly. This SDS contains valuable information critical to the safe handling and proper use of the product. In its manufactured and shipped state this product is considered to present a low hazard. However, on site processing, such as grinding or cutting, may generate fiberglass and carbon fiber dust and particles that may present the following hazards. See the CSS V-Wrap™ 770 Safety Data Sheet for more information if using in accordance with this product.

GHS Classification

Under normal conditions, Carbon Anchors are not expected to pose any health or safety hazards. However, any processes that involve the formation of carbon anchor dust/particles can result in health and safety hazards. Additionally, carbon fiber is electrically conductive, which can result in the short-circuiting of electrical equipment. Customers with sensitivities may experience mild skin irritation or sensitization when working with the carbon anchors. Other hazards will apply if field-laminating carbon anchors with CSS V-Wrap™ 770. See CSS V-Wrap™ 770 Safety Data Sheet for complete safety information. Ensure that good work practices and the necessary precautionary measures are taken to maintain safe use of the product.

Hazards Not Otherwise Classified (HNOC)

The following potential health and safety hazards are associated with the creation of carbon anchor dust/particles due to customer processes. Most hazards are expected to be due to the mechanically abrasive nature of the dust/particles, and are expected to only be temporarily irritating.

Physical Hazards:	Not Classified		
Health Hazards:	Skin Corrosion/Irritation	Category 3	H316: Causes mild skin irritation
	Serious Eye Damage/Irritation	Category 2	H319: Causes serious eye irritation
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
	STOT, Single Exposure	Category 3	H335: May cause respiratory irritation
Environmental Hazards:	Not Classified.		
OSHA Hazard:	Combustible Dust	May form combustible dust concentrations in air	

Main Symptoms: Irritation of eyes and skin. Symptoms include redness, itching, burning, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin. May cause shortness of breath or other respiratory distress/irritation.

Exclamation Point

Contains: Carbon fiber, Fiberglass, Polyester Veil, Copolyamide Veil, Polyester Yarn, Sizing

Signal Word:	**WARNING!**	
Precautionary Statements:		
Prevention:	P102:	Keep out of reach of children.
	P103:	Read label before use.
	P261:	Avoid breathing dust.
	P264:	Wash hands thoroughly after handling.
	P271:	Use only outdoors or in a well-ventilated area.
	P272:	Contaminated clothing should not be allowed out of the workplace.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P363:	Wash contaminated clothing before reuse.
	P304+P340:	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P314:	Get medical advice/attention if you feel unwell.
Storage:	P420:	Store away from incompatible materials.
Disposal:	P501:	Dispose of contents/container in accordance with local/regional regulations.

Supplemental Label Information: None known.

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for each component are listed below. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

List of abbreviations and symbols:
Classification: Global Harmonized System Classifications
The full text for H-phrases is displayed in section 16. All concentrations are in percent by weight unless otherwise noted.

Resin (White Side)

Chemical Name	Weight %	CAS Number	EC Number
Carbon Fiber **Classifications:** Eye Irrit. 2: H319, STOT SE 3 : H335	75-100	7440-44-0	231-153-3
Fiberglass (continuous filament, non respirable) **Classifications:** None	< 15	65997-17-3	266-046-0
Polyester Veil **Classifications:** None	< 15	25083-59-9	---
Copolyamide Veil **Classifications:** N/A	< 15	N/A	N/A
Polyester Yarn Classifications: None	< 5	25083-59-9	---
Sizing **Classifications:** N/A	< 5	N/A	N/A

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: If experiencing eye irritation due to dust, flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If you experience redness, burning, blurred vision, or swelling, **consult a physician.**

Skin Contact: If experiencing skin irritation, wash affected area with soap and water. Do not apply greases or ointments. If rash or irritation occurs **consult a physician.**

Ingestion: Ingestion is unlikely. If swallowed, rinse mouth immediately. **Consult a physician.**

Inhalation: Remove patient to fresh air. Give oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Irritant effects. Symptoms include itching, burning, redness, tearing, and blurred vision; discomfort in the chest, shortness of breath, coughing.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.

Additional Information: This material is not expected to burn in a fire. If this product is present in a fire, fight fire based on the packaging material, surrounding material, etc. The sizing may burn off the fiber.

Hazards during Fire-Fighting: Fiber or dust may glow in an oxygen-containing atmosphere above 662°F (350°C). When glowing, and during combustion CO/CO_2 is generated. Additionally, there is the potential release of degradation products such as NH_3, HCN and monomeric acrylonitrile. Irritating and toxic gases/fumes may be released during a fire.

Fire-Fighting Procedures: Use standard fire-fighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

Other Information: This product is not expected to burn. Do not incinerate carbon fibers since airborne fibers may cause electrical malfunctions.

6. Accidental Release Measures

Personal Precautions

Keep unnecessary personnel away. Wear appropriate personal protection equipment. Avoid inhalation of dusts.

Clean-Up Methods

This product is not expected to present a serious spill hazard. If spilled, collect spilled material and either reuse or dispose of properly. Avoid processes that result in the creation of dust. In the case of the creation or spill of process dust, avoid dry sweeping. Use water spraying/flushing or ventilated or HEPA filtered vacuum cleaning system. If not possible, gently moisten dust before collection with shovel or broom. Dispose of in closed containers.

Environmental Precautions

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

7. Handling and Storage

Handling

Wear appropriate personal protective equipment. If processing, use work methods which minimize carbon anchor dust production. Do not breathe dust, and ensure adequate ventilation. Avoid contact with eyes, skin, and clothing. When in use do not eat, drink, or smoke. Wash thoroughly after handling. Use good housekeeping and observe good industrial hygiene practices.

Storage

Store in a closed container away from incompatible materials. Store in a cool, dry place.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

Protective Measure: Wear appropriate personal protective equipment.

Eye Protection: Wear goggles or safety glasses.

Hand Protection: Protective gloves recommended.

Skin and Body Protection: Wear long sleeve shirts/long pants and other clothing as required to minimize contact.

Respirator Protection: The use of a respirator is not required during normal use of this product. An approved respirator should be worn whenever workplace conditions warrant respirator use.

General Hygiene: 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.

Engineering Controls

When using indoors good general ventilation should be used. Ventilation rates should be matched to conditions. Provide eyewash station.

Exposure Limits

Component	OSHA (PEL)	ACGIH (TLV)	NIOSH Pocket Guide
General Nuisance Dust	5 mg/m³ (respirable) 15 mg/m³ (total dust)	3 mg/m³ (respirable) 10 mg/m³ (total dust)	N/E

*Under certain conditions this substance may be a nuisance dust.

9. Physical and Chemical Properties

Physical State:	Solid	**Freezing/Melting Point:**	N/A
Form:	Solid/Continuous Fiber	**Boiling Point:**	N/A
Color:	Black	**Flash Point:**	N/A
Odor:	None	**Evaporation Rate:**	N/A
Odor Threshold:	N/A	**Specific Gravity:**	1.7-1.9
pH:	N/A	**VOC:**	N/A
Flammability:	N/A	**U/L Flammability:**	N/A
Vapor Pressure:	N/A	**Vapor Density:**	N/A
Solubility:	Insoluble	**Kow:**	N/A
Decomposition:	N/A	**Viscosity:**	N/A

10. Stability and Reactivity

Reactivity: Stable and non-reactive under normal conditions of use and storage.
Chemical Stability: Stable under normal conditions of use and storage.
Condition to Avoid: None known.
Substances to Avoid: Strong oxidizing agents such as fluorine.
Hazardous Reactions: Hazardous polymerization will not occur.
Decomposition Products: Not expected under normal conditions of processing and use. Thermal decomposition of sizing may begin to occur at high temperatures >248°F (>120°C) resulting in the release of small amounts of nitrogen oxides, carbon monoxide, organic compounds, and other potentially hazardous substances.

11. Toxicological Information

Likely Routes of Exposure

Ingestion: May cause discomfort if swallowed.
Inhalation: May cause respiratory tract irritation if process dust is inhaled.
Skin contact: May cause skin irritation or sensitization.
Eye contact: May cause eye irritation. Particles can cause corneal abrasion.
Symptoms: Rash, redness, itching, burning, tearing, swelling, and blurred vision. May cause shortness of breath or coughing.

Information on Toxicological Effects

Acute Effects

Toxicity: Not expected to be acutely toxic.
Skin corrosion/irritation: Prolonged contact may cause temporary irritation.
Eye damage/eye irritation: Direct eye contact may cause temporary irritation
Respiratory sensitization: No data available.
Skin sensitization: May cause an allergic skin reaction.
Aspiration hazard: No data available.
Specific target organ toxicity
Single exposure: May cause respiratory irritation.

Chronic Effects

Germ cell mutagenicity: No data available.
Carcinogenicity: This product contains synthetic fibers. While OSHA does not classify fiberglass as a carcinogen, some mineral fibers are considered to be potentially carcinogenic. Only certain mineral fibers, such as biopersistent fibers, show evidence for possible carcinogenicity. They are only considered carcinogenic in their respirable form through prolonged and excessive exposure. These mineral fibers are not expected to be present in this product. Ensure good work practice and the use of personal protective equipment to minimize exposure to processing dust.
Reproductive toxicity: No data available.

Specific target organ toxicity

Repeated exposure: No data available.

Carcinogen / Reproductive Toxin / Mutagen Information					
Component	**% In Blend (approx.)**	**IARC Monographs**	**NTP**	**ACGIH**	**Other**
Synthetic Mineral Fibers	< 15	3	ANTICIPATED	---	---
IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected CA65 – California Prop 65					

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with certain pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material or processing dust.

12. Ecological Information

General Information

Information given is based on data on the components and the ecotoxicology of similar products. This product is not classified as environmentally hazardous. Large or frequent spills can have a harmful or damaging effect on the environment, but is unlikely due to the nature of the product.

Supporting Data

Persistence and degradability: No data available.
Bioaccumulative potential: No data available for the product.
Mobility in soil: No data available.

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 product.

13. Disposal Considerations

Waste Disposal of Substance: Do not allow material into sewers/water supplies. Do not contaminate ponds, waterways or ditches. Dispose of contents/container in accordance with local/regional/national/international regulations.

Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be disposed of in accordance with local/regional/national/international regulations.

14. Transportation Information

DOT: CSS V-Wrap™ HMCA is not regulated for transport.

IMDG/IATA: CSS V-Wrap™ HMCA is not regulated for transport.

Additional Information

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or national regulations.

15. Regulatory Information

United States

Federal Regulations: This product is an "Article" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.
CERCLA Hazardous Substance List (40 CFR 302.4): Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories: Immediate	Delayed	Fire	Pressure	Reactivity
Yes	No	No	No	No

SARA 302 Extremely hazardous substance: No
SARA 311/312 Hazardous chemical: Yes
SARA 313 (TRI reporting): Not regulated.

California Proposition 65:
WARNING: This product can expose you to chemicals which are known to the State of California to cause cancer, reproductive harm, or other birth defects. For more information, go to www.P65Warnings.ca.gov.

Carcinogen / Reproductive Toxin / Mutagen Information

Component	% In Blend (approx.)	IARC Monographs	NTP	ACGIH	Other
Epichlorohydrin (CAS 106-89-8)	Trace	2A	ANTICIPATED	A3	CA65 (Carcinogenic)
Phenylglycidyl Ether (CAS 122-60-1)	Trace	2B	---	A3	CA65 (Carcinogenic)

IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic
NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen
ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected
CA65 – California Prop 65

*The nature of this product makes exposure to these chemicals very unlikely.

Canada

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

International

The product is classified and labeled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

This product is not subject to or not applicable for any of the following International Regulations; **Stockholm Convention, Rotterdam Convention, Kyoto Protocol, Montreal Protocol, Basel Convention.**

International Inventories

Canada	All components of this product are included on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
United States & Puerto Rico	All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory or are not required to be listed.

16. Other Information

Date Prepared or Revised: June 2022
Supersedes: New
Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com.

Abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists
CAS No.: Chemical Abstract Service Registry Number
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
HPR: Hazardous Product Regulations (Canada)
DOT: Department of Transportation (U.S.)
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
HEPA: High-Efficiency Particulate Air
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods code

NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Disclaimer

Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

Internal

FOR INTERNAL USE ONLY

XNA

CARBON FABRIC

Smarter Strengthening Solutions™

CSS V-Wrap™ C400HM

High-Modulus Code-Listed Unidirectional Carbon Fabric

DESCRIPTION

CSS V-Wrap C400HM is a high-modulus unidirectional carbon fiber fabric with fibers oriented in the 0° direction. The CSS V-Wrap C400HM system is field laminated using a two-part, 100% solids and high-strength CSS V-Wrap-approved structural adhesives to form a carbon-fiber-reinforced polymer (CFRP) system used to reinforce and strengthen structural elements.

CODE REPORTS AND COMPLIANCE

ICC-ES ESR-4930

MATERIAL PROPERTIES

Typical Data

Storage Conditions	Store dry at 40°F – 90°F (4°C – 32°C)
Color	Black
Primary Fiber Direction	0° (unidirectional)
Weight	38 oz./yd.^{2} (1,300 g/m^2)
Shelf Life	10 years

Dry Fiber Properties	
Tensile Strength	790,000 psi (5,440 MPa)
Tensile Modulus	42 x 10^6 psi (289,550 MPa)
Elongation at Break	1.9%

Cured Laminate Properties	Average Values	Design Values*
Tensile Strength	180,000 psi (1,240 MPa)	155,000 psi (1,070 MPa)
Modulus of Elasticity	14.24 x 10^6 psi (98,100 MPa)	14.0 x 10^6 psi (96,500 MPa)
Elongation at Break	1.27%	1.1%
Thickness	0.08 in. (2.03 mm)	0.08 in. (2.03 mm)
Strength per Unit Width	14,400 lb./in. (2.52 kN/mm)	12,400 lb./in. (2.17 kN/mm)

*Design properties are based on ACI 440.2R using average minus three standard deviations.

MADE IN USA with GLOBAL MATERIALS

PERFORMANCE FEATURES

- ICC-ES ESR-4930 listed product
- UL Listed (ul.com/database)
- NSF/ANSI Standard 61 listed product for drinking water systems
- 0% VOC
- 100% solvent-free
- Noncorrosive reinforcement system
- Lightweight flexible fabric can be wrapped around complex shapes
- Used for shear, confinement or flexural strengthening
- High strength and high modulus
- Lightweight
- Reduces crack width
- Low aesthetic impact

APPLICATIONS

CSS V-Wrap fabrics can be used to resolve strength deficiencies and increase the load-carrying capacity of buildings, bridges, silos, chimneys and other structures.

- Load increases
- Seismic strengthening
- Repair structural elements
- Change in structural system
- Design or construction defects

PACKAGING

Roll Size (Width x Length)	Model No.
12 in. x 50 yd. (305 mm x 45.7 m)	CV-C400HM12-50
24 in. x 50 yd. (610 mm x 45.7 m)	CV-C400HM24-50

HOW TO USE

Design
Design should comply with ACI 440.2R or another recognized design/specification entity and is typically based on CFRP contribution determined by detailed analysis. Design values will vary based on project requirements and applicable environmental and strength reduction factors.

Surface Preparation
Surfaces to receive CSS V-Wrap C400HM must be clean and sound. They must be dry and free of frost. All dust, laitance, grease, curing compounds, waxes, deteriorated materials and other bond-inhibiting materials must be removed from the surface prior to application. Existing uneven surfaces must be filled with appropriate epoxy putty or repair mortar. Use abrasive blasting, pressure washing, shotblasting, grinding or other approved mechanical means to achieve an open-pore texture with a concrete surface profile of not less than CSP-3 (ICRI). In certain applications and at the engineer's discretion, the bond between the substrate and the fabric may be determined to be non-critical (such as in column confinement applications). All corners must be rounded to ½" radius minimum. The adhesive bond strength of the concrete may be verified after surface preparation by random pull-off testing (ASTM C1583) at the discretion of the engineer. Minimum tensile strength of 200 psi must be achieved for concrete.

Handling
Approved personal protection equipment should be worn at all times. Particle mask is recommended for possible airborne particles. Gloves are recommended when handling fabrics and resins to avoid skin irritation. Safety glasses are recommended to prevent eye irritation. Wear chemical-resistant clothing/gloves/goggles. Ventilate area. In absence of adequate ventilation, use a properly fitted NIOSH respirator.

Cutting
Fabric can be cut to appropriate length by using commercial quality heavy-duty scissors.

Application
Installation of the CSS V-Wrap strengthening system should be performed only by a specially trained, approved contractor. The CSS V-Wrap strengthening system shall consist of CSS V-Wrap carbon fabric and CSS V-Wrap 770 epoxy.

Note the specified number of plies, ply widths and fiber orientation. Mix resin components using recommended procedures on product data sheet. Apply one coat of CSS V-Wrap 770 epoxy as a primer to the surface using a nap roller. Fill minor concrete defects such as bug holes and other imperfections using CSS V-Wrap 770 epoxy mixed with fumed silica (thickened epoxy) or CSS V-Wrap PF putty filler. Apply thickened epoxy or putty using a trowel. Adjust the gap between saturator rollers to approximately 84 mil. Using a saturator machine, pre-saturate the appropriate length of CSS V-Wrap fabric with CSS V-Wrap 770 epoxy as a saturant. Install the saturated CSS V-Wrap fabric. Use a rib roller to remove all air pockets and ensure intimate contact with the surface. If a splice is needed, a minimum 6" overlap is required to achieve continuity. On multiple plies with splices, stagger the splice locations. If required, apply topcoat material.

Limitations
- Design calculations must be approved by a licensed professional engineer.
- System is a vapor barrier.
- Concrete deterioration and steel corrosion must be resolved prior to application.
- Minimum application temperature is 40°F.

Storage
Store material in a cool, dark space. Low humidity is recommended.

CAUTION
Protective Measures: The use of safety glasses and chemically-resistant gloves is recommended. Use appropriate clothing to minimize skin contact. The use of a NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the PEL. Refer to Safety Data Sheets (SDS) available at **strongtie.com/sds** for detailed information.

FIRST AID
Skin: Wash fibers off skin with water and soap. If fibers are embedded in the skin, remove with tweezers. Discard clothing that may contain embedded fibers. Seek medical advice if exposure results in adverse effects.

Eyes: Immediately flush with a continuous water stream for at least 20 minutes. Washing immediately after exposure is expected to be effective in preventing damage to the eyes. Seek medical advice.

Inhalation: If there is inhalation exposure to the fibers of this product, remove source of exposure and move affected person to fresh air. If not breathing, give artificial respiration. If there is breathing difficulty, give oxygen. Seek medical advice for any respiratory problems.

Ingestion: Not expected to occur since ingestion is not a likely route of exposure for this product. If ingestion does occur, DO NOT INDUCE VOMITING. Nothing by mouth if unconscious. Seek medical advice.

CLEAN-UP
Environmental Precautions
Spill/Release and Cleanup Procedures: In case of spill, collect (e.g., sweep up, vacuum, etc.) spilled material and either reuse or dispose of properly. Chopped or milled carbon fibers may be slippery if spilled, posing an accident risk. Wear personal protective equipment as described in the SDS during cleanup activities.

LIMITED WARRANTY
This product is covered by the Simpson Strong-Tie RPS Product Limited Warranty, which is available at **strongtie.com/limited-warranties** or by calling Simpson Strong-Tie at (800) 999-5099.

CSS V-Wrap™ CHM *Unidirectional Fabrics*
SAFETY DATA SHEET

1. Identification

Product Identification

Product Identifier:	**CSS V-Wrap™ CHM Unidirectional Fabrics**
Recommended Use:	Unidirectional Carbon Fabrics are for use for structural reinforcement.
Use Restrictions:	None Known.

Company Identification

Company:	Simpson Strong-Tie Company Inc.
Address:	5956 W. Las Positas Blvd. Pleasanton, CA 94588, USA
Phone:	1-800-999-5099
Website:	www.strongtie.com
Emergency:	1-800-535-5053 (US/Canada) 1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

CSS V-Wrap™ CHM Unidirectional Fabric is a lightweight, high strength fabric for use for structural reinforcement. It is a single component, solid product designed to be laminated with an epoxy resin, CSS V-Wrap™ 770/PF. The product has been assessed according to the Globally Harmonized System (GHS). This Safety Data Sheet covers hazards and responses for the safe use and handing of CSS V-Wrap™ CHM Unidirectional Fabrics. See the CSS V-Wrap™ 770/PF Safety Data Sheets for more information if using in accordance with this product.

GHS Classification

Exclamation Point

Under normal conditions, carbon fabric is not expected to pose any health or safety hazards. However, the cutting or processing of carbon fabric may result in the formation of dust/particles that can pose health and safety hazards. Additionally, carbon fiber is electrically conductive, which can result in the short-circuiting of electrical equipment. Customers with sensitivities may experience mild skin irritation or sensitization when working with carbon fabrics. Other hazards will apply if field-laminating carbon fabric with CSS V-Wrap™ 770/PF. See the CSS V-Wrap™ 770/PF Safety Data Sheet for complete safety information. Ensure that good work practices and the necessary precautionary measures are taken to maintain safe use of the product.

Hazards Not Otherwise Classified (HNOC)

The following potential health and safety hazards are associated with the creation of dust/particles due to the cutting and processing of carbon fabrics, These health hazards are expected to be due to the mechanically abrasive nature of the dust/particles, and are expected to only be temporarily irritating.

Physical Hazards:	Not Classified		
Health Hazards:	Skin Corrosion/Irritation	Category 3	H316: Causes mild skin irritation
	Serious Eye Damage/Irritation	Category 2	H319: Causes serious eye irritation
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
	STOT, Single Exposure	Category 3	H335: May cause respiratory irritation
Environmental Hazards:	Not Classified.		
OSHA Hazard:	Combustible Dust	Can form explosive air-dust mixtures; avoid creating dust.	

Main Symptoms: Irritation of eyes and skin. Symptoms include redness, itching, burning, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin. May cause shortness of breath or other respiratory distress/irritation.

Contains: Carbon Fiber, Sizing, Bisphenol-A Based Epoxy Resin

Signal Word: **WARNING!**

Precautionary Statements:

Prevention:	P102:	Keep out of reach of children.
	P103:	Read label before use.
	P261:	Avoid breathing dust.
	P264:	Wash hands thoroughly after handling.
	P271:	Use only outdoors or in a well-ventilated area.
	P272:	Contaminated clothing should not be allowed out of the workplace.
	P280:	Wear protective gloves/clothing/eye protection/face protection.
Response:	P302+P352:	IF ON SKIN: Wash with plenty of water.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.

	P363:	Wash contaminated clothing before reuse.
	P304+P340:	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P314:	Get medical advice/attention if you feel unwell.
Storage:	P402:	Store in a dry place.
	P403:	Store in a well-ventilated place.
	P405:	Store locked up.
	P420:	Store away from incompatible materials.
Disposal:	P501:	Dispose of contents/container in accordance with local/regional regulations.

Supplemental Label Information: None known.

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for each component are listed below. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

List of abbreviations and symbols:
Classification: Global Harmonized System Classifications
The full text for H-phrases is displayed in section 16 if not above. All concentrations are in percent by weight unless otherwise noted.

Composition- All concentrations arein percent by weight unless otherwise indicated.

Chemical Name	Weight %	CAS Number	EC Number
Carbon Fiber **Classifications:** Eye Irrit. 2: H319, STOT SE 3: H335	> 95	7440-44-0	231-153-3
Bisphenol-A Based Epoxy Resin **Classifications:** Skin Irrit. 2: H315, Eye Irrit. 2: H319, Skin Sens. 1: H317, Aquatic Chronic 2: H411	< 1.5	25068-38-6	500-033-5

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: Flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If you experience redness, burning, blurred vision, or swelling, **consult a physician immediately.**

Skin Contact: Wash affected area with soap and water. Do not apply greases or ointments. If rash or irritation occurs **consult a physician.**

Ingestion: Ingestion is unlikely. If swallowed, rinse mouth immediately. **Consult a physician.**

Inhalation: Remove patient to fresh air. Give oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Irritant effects. Rash. Symptoms include redness, itching, burning, tearing, swelling, and blurred vision. May cause shortness of breath or coughing.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.

Additional Information: This material is not expected to burn in a fire. If this product is present in a fire, fight fire based on the packaging material, surrounding material, etc. The sizing may burn off the fiber.

Hazards during Fire-Fighting: Fiber or dust may glow in an oxygen-containing atmosphere above 662°F (350°C). When glowing, and during combustion, CO/CO2 is generated. Additionally, there is the potential release of degradation products such as NH3, HCN and monomeric acrylonitrile. Irritating and toxic gases/fumes may be released during a fire.

Fire-Fighting Procedures: Use standard fire-fighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

Other Information: This product is not expected to burn. Do not incinerate carbon fibers since airborne fibers may cause electrical malfunctions.

6. Accidental Release Measures

Personal Precautions

Keep unnecessary personnel away. Wear appropriate personal protective equipment. Avoid inhalation of dusts.

Clean-Up Methods

This product is not expected to present a serious spill hazard. Carbon fibers may be slippery (in sheet form or if chopped or milled) and can pose a fall risk. If spilled, collect (sweep, vacuum, etc.) spilled material and either reuse or dispose of properly. Avoid processes that result in the creation of dust. In the case of the creation or spill of process dust, avoid dry sweeping. Use water spraying/flushing or ventilated or HEPA filtered vacuum cleaning system. If not possible, gently moisten dust before collection with shovel or broom. Dispose of in closed containers.

Environmental Precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and Storage

Handling

Mechanical ventilation or local exhaust ventilation is recommended. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Do not breathe dust, mist, or vapor. Use only in well-ventilated places. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Wash contaminated clothing before reuse. Avoid dust formation. Observe good industrial hygiene practices. To obtain optimal performance from Simpson Strong-Tie products and to achieve maximum allowable design load, the products must be properly installed and used in accordance with the installation instructions and design limits provided by Simpson Strong-Tie.

Storage

Store in a closed container away from incompatible materials. Store in a cool, dry place out of direct sunlight.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

Protective Measure: Wear appropriate personal protective equipment.
Eye Protection: Wear chemical splash goggles or safety glasses with side shield.
Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection: Wear long sleeve shirts/long pants and other clothing as required to minimize contact.
Respirator Protection: The use of a respirator is not required during normal use of this product. An approved respirator should be worn whenever workplace conditions warrant respirator use.
General Hygiene: 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.

Engineering Controls

Mechanical ventilation or local exhaust ventilation is recommended. Ventilation rates should be matched to conditions 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 and emergency shower.

Exposure Limits

Component	OSHA (PEL)	ACGIH (TLV)	NIOSH Pocket Guide
General Nuisance Dust* *under certain conditions	5 mg/m^3 (respirable) 15 mg/m^3 (total dust)	3 mg/m^3 (respirable) 10 mg/m^3 (total dust)	N/E

9. Physical and Chemical Properties

Physical State:	Solid	**Freezing/Melting Point:**	N/A
Form:	Continuous Fiber	**Boiling Point:**	N/A
Color:	Black	**Flash Point:**	N/A
Odor:	None	**Evaporation Rate:**	N/A
Odor Threshold:	N/A	**Specific Gravity:**	1.75-1.85
pH:	N/A	**VOC:**	N/A
Flammability:	N/A	**U/L Flammability:**	N/A
Vapor Pressure:	N/A	**Vapor Density:**	N/A
Solubility:	Insoluble	**Kow:**	N/A

Decomposition: N/A **Viscosity:** N/A

10. Physical and Chemical Properties

Reactivity: This product is stable and non-reactive under normal conditions.
Chemical Stability: Stable under normal storage conditions.
Condition to Avoid: None known.
Substances to Avoid: Strong oxidizing agents such as fluorine.
Hazardous Reactions: Hazardous polymerization will not occur.
Decomposition Products: Not expected under normal conditions of processing and use. Thermal decomposition of sizing may begin to occur at high temperatures >248°F (>120°C) resulting in the release of small amounts of nitrogen oxides, carbon monoxide, organic compounds, and other potentially hazardous substances.

11. Toxicological Information

Likely Routes of Exposure

Ingestion: May cause discomfort if swallowed.
Inhalation: May cause respiratory tract irritation if dust is inhaled.
Skin contact: May cause skin irritation or sensitization.
Eye contact: May cause eye irritation. Particles can cause corneal abrasion.
Symptoms: Rash, redness, itching, burning, tearing, swelling, and blurred vision. May cause shortness of breath or coughing.

Information on Toxicological Effects

Acute Effects
Toxicity: Not expected to be acutely toxic.
Skin corrosion/irritation: Prolonged contact may cause temporary irritation.
Eye damage/eye irritation: Direct eye contact may cause temporary irritation.
Respiratory sensitization: No data available.
Skin sensitization: May cause an allergic skin reaction.
Aspiration hazard: No data available.
Specific target organ toxicity
Single exposure: No data available.
Chronic Effects
Germ cell mutagenicity: No data available.
Carcinogenicity: This product is not considered to be a carcinogen by IARC, NTP, ACGIH, or OSHA.
Reproductive toxicity: No data available.
Specific target organ toxicity
Repeated exposure: No data available.

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with certain pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material or processing dust.

12. Ecological Information

General Information

Information given is based on data on the components and the ecotoxicology of similar products. 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.

Supporting Data

Component	Estimate
Bisphenol-A-(Epichlorohydrin) (Epoxy Resin) (CAS 25068-38-6)	
Aquatic, Fish, LC50	< 2 mg/l, 96 hours
Aquatic, Crustacea, EC50	> 2 mg/l, 48 hours
Aquatic, Algae, EC50	> 10 mg/l, 72 hours

Persistence and degradability: No data available.
Bioaccumulative potential: No data available for the product.
Mobility in soil: No data available.

Other Adverse Effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption) are expected from this product.

13. Disposal Considerations

Waste Disposal of Substance: Do not allow material into sewers/water supplies. Do not contaminate ponds, waterways or ditches. Dispose of contents/container in accordance with local/regional/national/international regulations.

Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be disposed of in accordance with local/regional/national/international regulations.

14. Transportation Information

DOT: CSS V-Wrap™ CHM Unidirectional Fabrics are not regulated for transport.

IMDG/IATA: CSS V-Wrap™ CHM Unidirectional Fabrics are not regulated for transport.

Additional Information

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

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

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or national regulations.

15. Regulatory Information

United States

Federal Regulation: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.
CERCLA Hazardous Substance List (40 CFR 302.4): Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories: Immediate	Delayed	Fire	Pressure	Reactivity
Yes	No	No	No	No

SARA 302 Extremely hazardous substance: No
SARA 311/312 Hazardous chemical: Yes
SARA 313 (TRI reporting): Not regulated.

California Proposition 65:
WARNING: This product can expose you to chemicals which are known to the State of California to cause cancer, reproductive harm, or other birth defects. For more information, go to www.P65Warnings.ca.gov.

Carcinogen / Reproductive Toxin / Mutagen Information

Component	% In Blend (approx.)	IARC Monographs	NTP	ACGIH	Other
Epichlorohydrin (CAS 106-89-8)*	Trace	2A	ANTICIPATED	A3	CA65 (Carcinogenic)
Phenylglycidyl Ether (CAS 122-60-1)*	Trace	2B	---	A3	CA65 (Carcinogenic)

IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic
NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen
ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected
CA65 – California Prop 65

Canada

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

International

The product is classified and labeled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

This product is not subject to or not applicable for any of the following International Regulations; **Stockholm Convention, Rotterdam Convention, Kyoto Protocol, Montreal Protocol, Basel Convention.**

International Inventories

Canada	All components of this product are included on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
United States & Puerto Rico	All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory or are not required to be listed.

***EU:** Continuous Carbon Fiber and cut Carbon Fibers are considered to be articles under REACH and therefore do not require pre-registration or registration. These materials do not contain any substances or preparations of high concern (SVHC) as per the list issued by the ECHA, dated December 19, 2011, or are designated "CMR" toxins under REACH.

16. Other Information

Date Prepared or Revised: February 2022
Supersedes: New
Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com.

Abbreviations

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS No.:	Chemical Abstract Service Registry Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
CPR:	Controlled Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
LPP:	Limité Permisible Ponderado (Chile)
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
SDS:	Safety Data Sheet
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
U.S.:	United States
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Disclaimer

This Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

Internal

FOR INTERNAL USE ONLY

XNA