

CLOCK SPRING® MATERIAL SAFETY DATA SHEET
CS600A EPOXY RESIN

SECTION 1: IDENTIFICATION

Revised 7/31/12


PRODUCT IDENTIFIERS:	
PRODUCT NAME:	Composite Polymer Design 600A Epoxy Resin
SYNONYMS, TRADE NAMES:	CS600A
OTHER MEANS OF IDENTIFICATION:	Not available
RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE:	
USES:	Polymer Matrix For Fiber-Reinforced Plastic (FRP)
RESTRICTIONS ON USE:	None Identified
SUPPLIER:	MANUFACTURER :
CLOCK SPRING COMPANY L.P. 621 LOCKHAVEN DRIVE HOUSTON, TX 77073 PHONE: 281-590-8491 EMAIL: MSDS@CLOCKSPRING.COM	Endurance Technologies, Inc. 275 Bridge Point Drive South Saint Paul, MN 55075, USA TELEPHONE: +1 651 451 8000 FACSIMILE: +1 651 451 9728
CONTACT PERSON:	Eric Frank
EMERGENCY PHONE NUMBER: (CONTRACT #5043)	
CHEMTREC (24 HRS): USA	1 800 424 9300 CONTRACT # 5043
CHEMTREC (24 HRS): INTERNATIONAL	+1 703 527 3887 CONTRACT # 5043


SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION OF SUBSTANCE OR MIXTURE:

Skin irritation:	Category 2, H315
Eye irritation:	Category 2, H319
Skin sensitization:	Category 1, H317
Hazardous to the aquatic environment:	Chronic Category 2, H411
Acute toxicity, inhalation:	Category 4, H332
Acute toxicity, dermal:	Category 4, H312
Acute toxicity, oral:	Category 4, H302

GHS LABEL ELEMENTS:

HAZARD SYMBOLS:	
SIGNAL WORDS:	Warning
HAZARD STATEMENTS:	H302 Harmful if swallowed. H312 Harmful in contact with skin. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H332 Harmful if inhaled. H411 Toxic to aquatic life with long lasting effects.

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PRECAUTIONARY STATEMENTS:

PREVENTION:	P261 Avoid breathing fumes, mist, vapors and spray. P264 Wash hands thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves, clothing, and eye/face protection.
RESPONSE:	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 attention. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P333+P313 If skin irritation or rash occurs: Get medical attention. P362+P364 Take off contaminated clothing and wash it before reuse. P391 Collect spillage. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P301+P312 IF SWALLOWED: Call POISON CENTER and/or doctor if you feel unwell.
STORAGE:	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
DISPOSAL:	P501 Dispose of contents and containers in accordance with local, regional and international regulations.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – Annex III

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME:	CAS NUMBER:	CONTENT:
Bisphenol A Epoxy Resin	25068-38-6	70-90%
Aliphatic Epoxy Resin	2425-79-8	0-20%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

SECTION 4: FIRST-AID MEASURES

DESCRIPTION OF NECESSARY FIRST-AID MEASURES:

INHALATION:	If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.
SKIN:	Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. Get medical attention if symptoms occur.
EYES:	Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion.
INGESTION:	Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

MOST IMPORTANT SYMPTOMS AND EFFECTS, ACUTE AND DELAYED:

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SYMPTOMS:	Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. See section 11 for additional information.
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INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY:

TREATMENT:	TREATMENT: Treat symptomatically.
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SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA:

SUITABLE:	Use water spray, foam, dry chemical or carbon dioxide.
UNSUITABLE:	None known.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:

UNUSUAL FIRE & EXPLOSION HAZARDS: Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat.

HAZARDOUS COMBUSTION PRODUCTS: Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See Section 10 Hazardous decomposition products for additional information.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS: Wear self-contained breathing apparatus (SCBA) equipped with a full face piece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations. See section 9 for additional information.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources. Personal Protective Equipment must be worn.

ENVIRONMENTAL PRECAUTIONS: Do not flush product into public sewer, water systems or surface waters.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP: Stop leak if without risk. Move containers from spill area. Contain by diking with sand, earth or other non-combustible material. Wear proper personal protective clothing and equipment. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Use under well-ventilated conditions. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Avoid eye and skin contact. Avoid inhalation of aerosol, mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Discard shoes contaminated with this product.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES: Keep away from heat, sparks and open flames. Store dry at 15-40°C, under well-ventilated conditions. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Empty container contains residual product which may exhibit hazards of product. Do not reuse empty container without commercial cleaning or reconditioning.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS:

OCCUPATIONAL EXPOSURE LIMITS:

INGREDIENT NAME:	CAS NUMBER:	ACGIH-TWA:	ACGIH-STEL:
Bisphenol A Epoxy Resin	25068-38-6	Not available	Not available
Aliphatic Epoxy Resin	2425-79-8	Not available	Not available

APPROPRIATE ENGINEERING CONTROLS: Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain air concentrations below occupational exposure standards. When necessary use mechanical handling to reduce human contact with materials.

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT (PPE):

EYE/FACE PROTECTION:	Safety glasses or goggles required.
SKIN PROTECTION:	Wear chemical resistant (impervious) gloves; PVC, neoprene, nitrile rubber, EVAL, butyl rubber. Wear chemical resistant protective clothing. Use good laboratory/ workplace procedures including personal protective clothing: lab coat and protective gloves.
RESPIRATORY PROTECTION:	Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SDS.
GENERAL PROTECTION:	Eyewash fountains and safety showers are recommended in the work area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Viscous liquid	UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:	Not available
COLOR:	Clear amber	VAPOUR PRESSURE:	<1 mm Hg at 20°C
ODOUR:	Mild	VAPOUR DENSITY:	Heavier than air
ODOUR THRESHOLD:	Not available	RELATIVE DENSITY:	1.15
PH:	Not available	SOLUBILITY(IES):	Negligible
MELTING POINT/ FREEZING POINT	Not available	PARTITION COEFFICIENT (n-octanol/water):	Not available
INITIAL BOILING POINT AND BOILING RANGE:	>200°C	AUTO-IGNITION TEMPERATURE:	Not available
FLASH POINT:	>110°C (Closed Cup)	DECOMPOSITION TEMPERATURE:	>200°C
EVAPORATION RATE:	Not available	VISCOSITY:	13,500 cP at 25°C
FLAMMABILITY (SOLID, GAS):	Not available		

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SECTION 10. STABILITY AND REACTIVITY

REACTIVITY: Exothermic reactions including polymerization may occur in contact with amines, strong acids, strong bases, alcohols, strong oxidizing agents and excessive heat.

CHEMICAL STABILITY: This product is stable.

POSSIBILITY OF HAZARDOUS REACTIONS: Exothermic reactions including polymerization may occur in contact with amines, strong acids, strong bases, alcohols, strong oxidizing agents and excessive heat.

CONDITIONS TO AVOID: Excessive heat and ignition sources.

INCOMPATIBLE MATERIALS: Avoid strong acids, bases, and oxidizing agents. Avoid contact with amines.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may produce smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion. Phenolics.

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON THE LIKELY ROUTES OF EXPOSURE: Eyes, skin, inhalation and ingestion.

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:

EYES:	May cause irritation.
SKIN:	May cause allergic skin reaction. Causes skin irritation. Repeated or prolonged contact may cause skin irritation and dermatitis.
INHALATION:	High airborne concentrations of vapors resulting from heating, misting or spraying may cause irritation of the respiratory track and mucous membranes.
INGESTION:	May be harmful if swallowed. Ingestion may cause irritation.

DELAYED AND IMMEDIATE EFFECTS AND ALSO CHONIC EFFECTS FROM SHORT AND LONG TERM

EXPOSURE: Further information is not available.

ACUTE TOXICITY:

CHEMICAL NAME	LC ₅₀ INHALATION	LD ₅₀ ORAL (RAT)	LD ₅₀ DERMAL (RABBIT)
Bisphenol A Epoxy Resin	Not available	>2,000 mg/kg	>2,000 mg/kg
Aliphatic Epoxy Resin	>250 ppm (6 hours)	1,134 mg/kg	1,130 mg/kg

CORROSION / IRRITATION / SENSITIZATION INFORMATION:

SKIN CORROSION/IRRITATION:	Skin irritation – Category 2
SERIOUS EYE DAMAGE/IRRITATION:	Eye irritation – Category 2
RESPIRATORY OR SKIN SENSITIZATION:	Skin sensitization – Category 1

CARCINOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICOLOGY INFORMATION:

GERM CELL MUTAGENICITY:	Information is not available.
CARCINOGENICITY:	Information is not available.
REPRODUCTIVE TOXICITY:	Information is not available.

SPECIFIC TARGET ORGAN TOXICITY (STOT):

STOT-SINGLE EXPOSURE:	Information is not available.
STOT-REPEATED EXPOSRE:	Information is not available.

ASPIRATION HAZARD: Information is not available.

OTHER INFORMATION: Additional information is not available.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY:

Chemical Name	LC ₅₀ 96 Hours (Fish)	EC ₅₀ 24 Hours (Daphnia)	IC ₅₀ 96 Hours (Bacteria)
Bisphenol A Epoxy Resin	2.4 mg/L	3.6 mg/L	>100 mg/L
Aliphatic Epoxy Resin	24 mg/L	75 mg/L	Not available

N/E = Not established (no exposure limits established for listed substances for listed country/region/organization).

PERSISTENCE AND DEGRADABILITY:

Chemical Name	OECD Derived from OECD 301F (Biodegradation Test) - 28 Days
Bisphenol A Epoxy Resin	5% (not readily biodegradable)
Aliphatic Epoxy Resin	Not readily biodegradable

BIOACCUMULATIVE POTENTIAL:

Chemical Name	Log P _{ow}	BCF	Potential
Bisphenol A Epoxy Resin	3.242	31	Low
Aliphatic Epoxy Resin	-0.15	Not available	Not available

MOBILITY IN SOIL:

Chemical Name	Soil/Water Partition Coefficient (K _{oc})
Bisphenol A Epoxy Resin	445
Aliphatic Epoxy Resin	Not available

OTHER ADVERSE EFFECTS: Additional information is not available

SECTION 13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS: Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate. See section 8 for recommendations on the use of personal protective equipment.

SECTION 14. TRANSPORTATION INFORMATION

UN NUMBER: UN3082

UN PROPER SHIPPING NAME: Environmentally Hazardous Substance, Liquid, N.O.S. (Bisphenol A Epoxy Resin)

TRANSPORT HAZARD CLASS:

U.S. DOT HAZARD CLASS: Not Regulated

CANADA TDG HAZARD CLASS: Not Regulated

EUROPE ADR/RID HAZARD CLASS: 9

IMDG CODE (OCEAN) HAZARD CLASS: 9

ICAO/IATA (AIR) HAZARD CLASS: 9

PACKING GROUP: III

ENVIRONMENTAL HAZARDS:

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MARINE POLLUTANT: Yes
HAZARDOUS SUBSTANCE (USA): No
SPECIAL PRECAUTIONS FOR USER: Information is not available.
TRANSPORTING IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE: Information is not available.



LABEL FOR CONVEYANCE:
OTHER INFORMATION: For surface shipments within the United States: Not regulated.

SECTION 15. REGULATORY INFORMATION
SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT IN QUESTION:

EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV – List of substances subject to authorization, Substances of very high concern	None of the components are listed.
Annex XVII – Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	None of the components are listed.

OTHER REGULATIONS: Additional information is not available.

CHEMICAL INVENTORIES:

Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
European Inventory of Existing Chemical Substances (EINECS):	Y
European List of Notified Chemical Substances (ENCS):	N
U.S. Toxic Substances Control Act (TSCA):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory; 2) no information is available; or 3) the component has not been reviewed.

SECTION 16. OTHER INFORMATION

REVISION DATE: April 19, 2012

LEGEND:

- ACGIH: American Conference of Governmental Industrial Hygienists
- ADR/RID: European dangerous goods transport road and rail regulations
- CAS No: Chemical Abstract Service Registry Number
- DOT: Department of Transportation (U.S.)
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organization
- IMDG: International Maritime Dangerous Goods code
- OEL: Occupational Exposure Limits
- OSHA: Occupational Safety and Health Administration (U.S.)
- PEL: Permissible Exposure Limit
- RQ: Reportable Quantity
- SDS: Safety Data Sheet
- STEL: Short Term Exposure Limit (15 minute Time Weighted Average)

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TDG: Canadian Transportation of Dangerous Goods Act and Regulations

UN: United Nations

U.S.: United States

USERS RESPONSIBILITY/DISCLAIMER OF LIABILITY:

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

Prepared By:

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Prepared on 7/31/12

Supercedes 10/5/07

The Information in the Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for the adoption of the safety precautions as may be necessary. We reserve the right to revise Material Safety Data Sheets from time to time as new technical information becomes available. The user has the responsibility to contact the company to make sure that the sheet is the latest on issued.