SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:.....WEST SYSTEM® 423 Graphite Powder
APPLICABLE PRODUCT CODES: 423, 423-2, 423-B
CHEMICAL FAMILY:.....Natural graphite
INTENDED PRODUCT USES:.....Pigment additive for liquid epoxy resins
PRODUCT RESTRICTIONS:.....None identified
SDS VERSION: 423-2016b

MANUFACTURER:
Gougeon Brothers, Inc.
100 Patterson Ave.
Bay City, MI 48706, U.S.A.
Phone: 866-937-8797 or 989-684-7286
www.westsystem.com

EMERGENCY TELEPHONE NUMBERS (24 HRS):
Transportation
CHEMTREC:..... 800-424-9300 (U.S.)
703-527-3887 (International)
Non-transportation
Poison Hotline: 800-222-1222

2. HAZARDS IDENTIFICATION

Classification of Substance or Mixture

Carcinogenicity, Category 1A
Specific target organ toxicity (repeated exposure - inhalation), Category 1
Combustible dust

Label Elements

Hazard Pictogram(s):

Signal Word:
DANGER

Hazard Statements:
H350 May cause cancer
H372 Causes damage to organs through prolonged or repeated exposure if inhaled.
May form combustible dust concentrations in the air

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 dust/fume/mist/vapors/spray
P264 Wash skin thoroughly after handling
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/eye protection/protective clothing/face protection
Response
P308 + P313 If exposed or concerned: Get medical advice/attention
Storage
P405 Store locked up
Disposal
P501 Dispose of contents and container according to local, state, national and International regulations

Keep away from all ignition sources including heat, sparks and open flame
Prevent dust accumulations to minimize explosion hazard

Other Hazards
None known.

3. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

INGREDIENT NAME	CAS #	CONCENTRATION (%)
Carbon variety graphite (natural graphite)	7782-42-5	60-95
Natural occurring mineral (inert ash)	999999-99-4	15-20
Crystalline silica (variety Quartz, may be in respirable form)	14808-60-7	0.5 – 4.5

The exact chemical identity and/or exact percentage (concentration) of each ingredient may be held as a trade secret. Ingredient ranges provided may represent actual concentration ranges. Any ingredient not disclosed may have been determined not to pose a health or environmental hazard, or may only be present in concentrations that do not require disclosure. Refer to Section 15 for additional information regarding a WHMIS CBI claim.

4. FIRST AID MEASURES

FIRST AID FOR EYES..... SYMPTOMS: Excessive exposure may cause mechanical irritation and tearing. RESPONSE: Flush with water for at least 15 minutes. Remove contact lenses if present and easy to do. Consult a physician if symptoms develop and persist.

FIRST AID FOR SKIN..... SYMPTOMS: May cause slight skin irritation and dryness. RESPONSE: Wash with mild soap and water. Consult a physician if symptoms develop and persist.

FIRST AID FOR INHALATION..... SYMPTOMS: Excessive exposure may cause respiratory irritation. RESPONSE: Remove to fresh air if symptoms develop and keep comfortable for breathing. Seek medical advice if symptoms develop and persist.

FIRST AID FOR INGESTION..... SYMPTOMS: No acute adverse health effects expected from amounts ingested under normal conditions of use. RESPONSE: Seek medical attention if a significant amount is ingested.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: ..... SUITABLE: Dry chemical, water, sand, limestone. Apply extinguishing media carefully to avoid creating airborne dust. NON-SUITABLE: CO_2 or any high-pressure media.

FIRE AND EXPLOSION HAZARDS: ..... Possible explosion hazard. May form combustible dust concentrations in the air. See Section 9 for additional information. Combustion may result in the release of carbon monoxide and carbon dioxide. At temperatures above 1500C, graphite reacts with substances containing oxygen, including water and carbon dioxide. In the case of intensely hot fire events, use sand to cover and isolate graphite.

SPECIAL FIRE FIGHTING PROCEDURES: ..... In the event of a fire, do not breathe fumes. Wear a self-contained breathing apparatus and complete full-body personal protective equipment. Dust may form an explosive mixture in the air, possibly resulting in a secondary explosion.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND PROTECTIVE EQUIPMENT: ..... Use only non-spark tools and methods. Keep unnecessary and unprotected personnel from entering area. Use appropriate safety and personal protective equipment as indicated in Section 8.

MITIGATION AND CLEAN UP PROCEDURES:..... Eliminate all ignition sources (no smoking, flares, sparks, flames, etc.). Use methods that avoid generating airborne dust. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by aggressive brushing or sweeping, or using compressed air.

ENVIRONMENTAL PRECAUTIONS:..... Contain spilled product to the extent practical and feasible. Natural graphite is inert and insoluble and is not expected to pose any soluble ion hazards to the environment. However, good housekeeping practices should be followed and spilled material should be cleaned up and disposed of in an appropriate manner.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE (min./max.): ..... 0°F (-17°C) / 95°F (35°C)

STORAGE:..... Store in cool, dry place. Keep container tightly closed in a dry area. Keep away from sources of ignition or heat. Avoid storing near oxidizing materials or other incompatible materials identified in Section 10. Store locked up.

HANDLING PRECAUTIONS: ..... Avoid dust formation. Do not breathe dust. Wash hands and face after handling. Provide appropriate exhaust ventilation at points of operation where dust can be generated. Use only equipment that is rated for safe handling of combustible solids. Avoid using compressed air. Dust may form explosive mixture with air. Dust deposits should not be allowed to accumulate on surfaces. Implement routine housekeeping to prevent dust build-up. Natural graphite is a good conductor of electricity. Avoid contact between natural graphite and electrical circuits. Graphite is a highly lubricious material and may present a slip hazard if spilled on smooth walking surfaces.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION GUIDELINES: ..... Safety glasses with side shields, or goggles if necessary.

SKIN PROTECTION GUIDELINES:..... Liquid-proof gloves (such as neoprene or nitrile) should be used in cases of prolonged or repeated contact to prevent skin irritation or dryness. Barrier creams can be used effectively.

RESPIRATORY/VENTILATION GUIDELINES:..... Use with adequate general ventilation and/or local ventilation to keep exposures below established limits. When ventilation cannot be made adequate enough to keep exposures below established limits, use a NIOSH approved respirator with particulate filter, such as a N95 or greater, depending on specific workplace conditions. Consult with your respirator and cartridge supplier to ensure proper selection of respirator and cartridge based on ingredients listed in Section 3 and specific

workplace conditions. Use and select a respirator according the guidelines established in OSHA 1910.134 or other applicable respiratory protection standard.

ADDITIONAL PROTECTIVE MEASURES:..... Practice good caution and personal cleanliness to avoid skin and eye contact. Wash thoroughly after handling. Do not eat, drink or smoke when handling this product. Generally speaking, working cleanly and following basic precautionary measures will greatly minimize the exposure to this product under normal use conditions.

OCCUPATIONAL EXPOSURE LIMITS: ..... Exposure limits may not be established for this product as a whole. For established exposure limits of specific ingredients in this product, or other available exposure limit information, refer to the table below.

Ingredient Name	CAS#	Exposure Limit Information
Carbon variety graphite (natural graphite)	7782-42-5	ACGIH: TLV, 2mg/m^3, TWA, Respirable; OSHA: 15 mppcf, TWA, Table Z-3 Mineral Dusts NIOSH: TWA, 2.5 mg/ m^3
Naturally occurring mineral (inert ash)	999999-99-4	ACGIH: TLV, 2mg/m^3, TWA, Respirable;
Crystalline silica (variety Quartz, may be in respirable form)	14808-60-7	ACGIH: TLV, 0.025mg/m^3, TWA, Respirable OSHA: TWA, 30mg/m^3 / % SiO_2 + 2, Table Z-3 Mineral Dusts NIOSH: TWA, 0.50mg/ m^3

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM: ..... Powder, solid.
COLOR: ..... Black.
ODOR:..... No distinguishable odor.
ODOR THRESHOLD: ..... No data available
pH..... No data available
MELTING POINT / FREEZING POINT ..... Sublimates at 3652°C
BOILING POINT (760mm/Hg): ..... No data available
FLASH POINT:..... No data available
AUTO IGNITION TEMPERATURE..... > 500°C
LOWER EXPLOSIVE LIMIT (LEL)..... No data available
UPPER EXPLOSIVE LIMIT (UEL) ..... No data available
VAPOR PRESSURE..... No data available
SPECIFIC GRAVITY/DENSITY (water = 1)..... 2.26
BULK DENSITY..... 18.82 lb./gal. (2.26 kg/L)
VAPOR DENSITY (air = 1) ..... No data available
EVAPORATIOIN RATE (Butyl Acetate = 1)..... No data available
WATER SOLUBILITY (% BY WT.) ..... Largely insoluble.
PARTITION COEFFICIENT, n-OCTANOL/WATER (log Pow)..... No data available
KINEMATIC VISCOSITY: ..... No data available (mm^2/s @ 20°C)
DECOMPOSITION TEMPERATURE: ..... Oxidizes above 450°C.
% VOLATILE BY WEIGHT: ..... 0-1%.
EXPLOSIVE PROPERTIES:..... Dust may form explosive mixtures in air. Explosive properties of this mixture have not been measured. One or more of the components of this mixture have been identified as having the potential to form an explosive mixture with air when suspended as a dust cloud.
Kst VALUE:..... 0-200
MAXIMUM EXPLOSION PRESSURE (Pmax) ..... No data available
MINIMUM IGNITION ENERGY (MIE):..... >10 J
MAXIMUM EXPLOSION CONCENTRATION (MEC): ..... No data available
DUST EXPLOSION CLASSIFICATION: ..... No data available

10. STABILITY AND REACTIVITY

STABILITY:..... Product is stable at normal temperatures and pressures.

REACTIVITY/HAZARDOUS REACTIONS:..... Graphite is non-reactive under ambient conditions. No hazardous reaction potential known.

INCOMPATIBILITIES: ..... Oxidizing agents.

CONDITIONS TO AVOID: ..... Avoid dust accumulation and airborne dust formation. Graphite will begin to oxidize above 450°C.

DECOMPOSITION PRODUCTS:..... Carbon monoxide, carbon dioxide.

11. TOXICOLOGICAL AND HAZARD ENDPOINT INFORMATION

Component Name	CAS#	LD_{50} Oral	LD_{50} Dermal	LC_{50} Inhalation
Carbon variety graphite (natural graphite)	7782-42-5	> 2000 mg/kg; OECD 423	No data	> 2000 mg/m^3 ; OECD 403
Naturally occurring mineral (inert ash)	999999-99-4	No data available	No data available	No data available
Crystalline silica (variety Quartz, may be in	14808-60-7	> 2000 mg/kg;		2000 mg/m^3 ; OECD

respirable form)		OECD 423		403

ACUTE TOXICITY: ..... No specific toxicity data exists for this mixture. Classification is based on acute toxicity estimation methods using ingredient data.

Oral: ..... Not classified. Does not meet acute oral toxicity criteria.
Dermal: ..... Not classified. Does not meet acute dermal toxicity criteria.
Inhalation:..... Not classified. Does not meet acute inhalation toxicity criteria.

SKIN CORROSION / IRRITATION:..... Not classified. Does not meet criteria for skin corrosion or skin irritation.

SERIOUS EYE DAMAGE / IRRITATION:..... Not classified. Does not meet criteria for eye damage or eye irritation. May cause mild eye irritation which may be a result of mechanical irritation.

RESPIRATORY SENSITIZATION:..... Not classified. Does not meet criteria for respiratory sensitizer.

SKIN SENSITIZATION:..... Not classified. Does not meet criteria for skin sensitization.

REPRODUCTIVE TOXICITY:..... Not classified. Does not meet criteria for reproductive toxicity.

MUTAGENICITY:..... Not classified. Does not meet criteria for mutagenicity.

CARCINOGENICITY:..... May cause cancer. Category 1A. Product may contain crystalline silica (quartz). Crystalline silica (quartz) is classified by IARC as a Group 1, Carcinogenic to humans, based on human evidence. Crystalline silica (quartz) is classified by NTP as Known to be carcinogenic to humans, based on human evidence. Crystalline silica (quartz) is not classified by OSHA as a carcinogen.

Prolonged inhalation of crystalline silica may result in silicosis, a disabling pulmonary fibrosis characterized by fibrotic changes and miliary nodules in the lungs, a dry cough, shortness of breath, emphysema, decreased chest expansion, in increased susceptibility to tuberculosis. In advanced stages, loss of appetite, pleuritic pain, and total incapacity to work. Advanced silicosis may result in death due to cardiac failure or destruction of lung tissue.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):..... Not classified. Does not meet criteria for STOT SE.

SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure): ..... STOT RE Category 1. May cause damage to organs (lungs) through prolonged or repeated exposure by inhalation.

ASPIRATION HAZARD: ..... Not classified. Does not meet aspiration toxicity criteria.

OTHER HEALTH HAZARD INFORMATION:..... None known.

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:..... No specific test data available for this product. Calculated Estimate: Does not meet acute aquatic toxicity criteria.

CHRONIC AQUATIC TOXICITY: ..... No specific test data available for this product. Calculated Estimate: Does not meet chronic aquatic toxicity criteria.

PERSISTANCE AND BIODEGRADABILITY: ..... No specific test data available for this product. Graphite is a reduced form of carbon and is not expected to degrade further under normal conditions.

MOBILITY IN SOIL: ..... No specific test data available for this product. Graphite is an insoluble, inorganic substance and is not expected to have mobility in soil.

ADDITIONAL ECOTOXICITY INFORMATION:..... Prevent release to the environment, sewers and natural waters.

Ingredient	CAS#	Ecotoxicity Classification Information
Natural graphite	7782-42-5	Not Classified.
Naturally occurring mineral (inert ash)	999999-99-4	No data available.
Crystalline silica (variety Quartz, may be in respirable form)	14808-60-7	No data available.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:..... Evaluation of this product using RCRA criteria shows that it is not a hazardous waste, either by listing or characteristics, in its purchased form. It is the responsibility of the user to determine proper disposal methods.

Reclaim or reuse may be preferred methods when conducted in accordance with federal, state and local regulations.

14. TRANSPORTATION INFORMATION

US DOT
UN NUMBER: ..... Not regulated.
SHIPPING NAME:..... Not applicable.
TECHNICAL SHIPPING NAME:..... Not applicable.
HAZARD CLASS:..... Not applicable.
PACKING GROUP:..... Not applicable.

CANADA TDG
UN NUMBER: ..... Not regulated.
SHIPPING NAME:..... Not applicable.
TECHNICAL SHIPPING NAME:..... Not applicable.
HAZARD CLASS:..... Not applicable.
PACKING GROUP:..... Not applicable.

ICAO/IATA
UN NUMBER: ..... Not regulated.
SHIPPING NAME:..... Not applicable.
TECHNICAL SHIPPING NAME:..... Not applicable.
HAZARD CLASS:..... Not applicable.
PACKING GROUP:..... Not applicable.
MARINE POLLUTANT: ..... Not applicable.

IMDG
UN NUMBER: ..... Not regulated.
SHIPPING NAME:..... Not applicable.
TECHNICAL SHIPPING NAME:..... Not applicable.
HAZARD CLASS:..... Not applicable.
PACKING GROUP:..... Not applicable.
EmS Number: ..... Not applicable.
MARINE POLLUTANT ..... Not applicable.

15. REGULATORY INFORMATION

COUNTRY	INVENTORY LIST	STATUS
United States	TSCA	All ingredients are listed or otherwise compliant.
Europe	EINECS or ELINCS	All ingredients are listed or otherwise compliant.
Canada	CEPA (DSL/NDSL)	All ingredients are listed or otherwise compliant. Not listed on NDSL.
Australia	AICS	All ingredients are listed or otherwise compliant.
Japan	ENCS	All ingredients are listed or otherwise compliant.
South Korea	KECL	All ingredients are listed or otherwise compliant.
China	IECSC	All ingredients are listed or otherwise compliant.
Philippines	PICCS	All ingredients are listed or otherwise compliant.
New Zealand	NZLoC	All ingredients are listed or otherwise compliant.

US EPA TSCA Requirements:..... No data available.

Canada WHMIS Confidential Business Information (CBI):..... No data available.

US EPA SARA TITLE III Reporting and Notification Requirements:
Subject to Section 302 (TPQ) ..... No data available.
Subject to Section 304 (RQ)..... No data available.
Subject to Section 311 or 312 ..... Fire.
Subject to Section 313 ..... No data available.

STATE REGULATORY INFORMATION:
Chemicals listed below may be specifically regulated by individual states. For details on state regulatory requirements you should contact the appropriate state agency.

COMPONENT NAME /CAS NUMBER	STATE CODE
Graphite 7782-42-5	MA, PA, NJ
Crystalline silica (quartz) 14808-60-7	MA, PA, NJ, [1]CA

[1] These substances are known to the state of California to cause cancer or reproductive harm, or both.

16. OTHER INFORMATION

REASON FOR ISSUE:..... Updates to Sections 3 and 15 to meet Canada WHMIS 2015 requirements.
PREPARED BY:..... G. M. House
APPROVED BY:..... G. M. House

SDS CONTACT: ..... safety@gougeon.com
TITLE: ..... Health, Safety & Environmental Manager
APPROVAL DATE: ..... August 29, 2016
SUPERSEDES DATE: ..... February 29, 2016
SDS VERSION: 423-2016b

OTHER HAZARD INFORMATION AND RATING SYSTEMS:

HMIS® RATING

HEALTH:	**1**
FLAMMABILITY:	**1**
PHYSICAL HAZARD:	**0**
PERSONAL PROTECTION:	

NFPA® 704 CODES

Approximate HMIS and NFPA Risk Ratings Legend:
0 = Low or None; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe

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