THE ELECTRIC MATERIALS COMPANY COMMUTATORS-EXTRUSIONS-ROTOR BAR-CASTINGS-FORGINGS A United Stars Co.	**SAFETY DATA SHEET (SDS)**	
	ID:	**COMMNONSBC**
	DATE ISSUED:	**5/28/2015**

SECTION 1 – PRODUCT IDENTIFICATION & COMPANY INFORMATION			
PRODUCT NAME:	**COMMNONSBC COMMUTATOR NON-SILVER BEARING**		
OTHER DESIGNATIONS:			
PRODUCT IDENTIFICATION:	Copper and Copper Alloys		
MANUFACTURER'S INFORMATION:	THE ELECTRIC MATERIALS COMPANY 50 SOUTH WASHINGTON STREET NORTH EAST, PA 16428		
EMERGENCY PHONE NO.:	**814-725-9621**	WEBSITE:	WWW.ELECMAT.COM

RECOMMENDED USE AND RESTRICTIONS ON USE:
Manufacturing & Industry for non-structural components predominantly to conduct electrical current.

SECTION 2 – HAZARD IDENTIFICATION	
CLASSIFICATION:	Copper and copper alloys are considered on "article" and not hazardous in its solid from. However, certain processes such as cutting, milling, grinding, melting and welding could result in some hazardous materials being emitted.
OTHER INFORMATION:	Fumes from hot processes may contain other compounds with different exposure limits. Dust or fumes generated by machining, grinding, welding or thermal cutting of the copper may produce airborne contaminants. Consult Sections 3 & 8 for further information.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS			
CHEMICAL NAME	**COMMON NAME**	**CAS #**	**PERCENT WEIGHT**
Cu	Copper	7440-50-8	N/A
Fe	Iron	1309-37-1	N/A
	Mica	12001-26-2	N/A
	Clay, Sand	1332-58-7	N/A
	Binders	1334-09-8	N/A

SECTION 4 – FIRST AID MEASURES	
EYE CONTACT:	Eye injuries from solid particles should receive immediate medical attention. Dust may be flushed from eyes immediately with large amounts of water, lifting the lower and upper lids occasionally; seek medical attention.
SKIN CONTACT:	Cuts or abrasions should be treated promptly with thorough cleansing of the affected area. Wash the skin using soap or mild detergent and water. Get medical attention if irritation develops and persists.
INGESTION:	If the product or dust is swallowed, seek immediate medical attention or advice. Do not induce vomiting.
INHALATION:	If breathing has stopped, perform artificial respiration and obtain medical aid immediately. If breathing is difficult, provide fresh air and seek medical attention as

	soon as possible.

SECTION 5 – FIREFIGHTING MEASURES	
FLAMMABLE PROPERTIES:	Not applicable
EXTINGUISHING MEDIA:	Not applicable; non-combustible
PROTECTION OF FIREFIGHTERS:	For a dust fire in a confined area, use a respirator approved for toxic dusts and fumes. Do not use water to extinguish fires around operations involving molten metal due to the potential for steam explosions.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Clean-Up Procedures: Product in solid form may be picked up by hand or other means to be placed into a container. When cleaning dust, use methods that minimize the dispersion of dust such as a high efficiency particulate air (HEPA) vacuum, wet dust mop, or wet clean-up. Put recovered material in a suitable, covered, and labeled container.

SECTION 7 – HANDLING AND STORAGE	
RECOMMENDED STORAGE:	Maintain good housekeeping to prevent exposure to materials and chemicals that may contaminate or impair the quality of the product.
PROCEDURES FOR HANDLING:	This product does not require special safety precautions for the handling prior to installation. Installation and removal of the product may cause exposure to dusts and other materials or chemicals associated with the installation (work) environment. Operations such as grinding, cutting, burning, and welding may generate dusts or fumes which may require special handling procedures.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:	When machining, heating, or melting, use adequate local (preferably) or general exhaust ventilation to ensure that concentrations of dusts or fumes do not exceed exposure limits. Keep workplace clean and dry (unless wet machining is being used to capture dust and fume). Train personnel to minimize exposure to hazards during installation and replacement of product. On a regular basis, verify condition and proper function of equipment in which the product will be installed.

SUBSTANCE	**ACGIH TLV mg/m^3**	**OSHA PEL mg/m^3**
Cu	1	1 (dust)
	0.2	0.2 (fume)
Fe	5	5
(mica)	3	3
(clay, sand)	2	2
(binders)	10	10
SUPPLEMENTAL INFORMATION Individual protection measures: Use appropriate gloves to protect against physical hazards. Always wear safety glasses with side shields and appropriate hearing protection when grinding or cutting.	**SUPPLEMENTAL INFORMATION** Individual protection measures: Use an approved respirator, with the proper assigned protection factor, whenever airborne concentrations of hazardous components exceed exposure limits listed above.	**SUPPLEMENTAL INFORMATION** Individual protection: Workers should was before meals and leaving work.

TERMS: ALL EXPOSURE LIMITS REFERENCED HEREIN ARE 8 HOUR TIMEWEIGHTED AVERAGES (TWA) UNLESS OTHERWISE NOTED.
TLV = THRESHOLD LIMIT VALUE/AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
mg/m^3 = MILLIGRAMS PER CUBIC METER

PERSONAL PROTECTION:	Proper hand and foot protection is recommended

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES	
APPEARANCE/PHYSICAL STATE: Metallic solid with a copper color	
ODOR/ODOR THRESHOLD: None	VAPOR DENSITY: Not volatile
MELTING/FREEZING POINT: Approximately 1083°C (1980°F) for copper	SPECIFIC GRAVITY: (relative density) 8.9 g/cm^3 (0.32 lb./in^3) for copper (water = 1)
BOILING POINT: 2500°C (4530°F) for copper	VAPOR PRESSURE: ~ 0 mm/Hg
FLASH POINT: Not determined	EVAPORATION RATE: Not volatile
FLAMMABILITY: Not flammable	SOLUBILITY IN WATER: Insoluble
UPPER & LOWER FLAMMABILITY LIMITS: Not applicable	pH: Not applicable
AUTO IGNITION TEMPERATURE: Not applicable	VISCOSITY: Not applicable
DECOMPOSITION TEMPERATURE: Not applicable	PARTITION COEFFICIENT: Not applicable

SECTION 10 – STABILITY & REACTIVITY	
CHEMICAL STABILITY: Stable under normal use conditions	
CONDITIONS TO AVOID: Temperatures > 150° C (300° F), which may soften the copper material.	
REACTIVITY: Copper may react with acetylene gas to form copper acetylides, which are sensitive to shock. Copper may react with strong acids to generate explosive gas (e.g. hydrogen).	INCOMPATIBLE MATERIALS: Dust is explosively incompatible with sodium azide.
HAZARDOUS DECOMPOSITION PRODUCTS: None	HAZARDOUS POLYMERIZATION: The melting of this product may release metal oxides.

SECTION 11 – TOXICOLOGICAL INFORMATION	
POTENTIAL HEALTH EFFECTS: Symptoms related to the physical, chemical and toxicological characteristics Under normal handling and use, exposure to product presents few health hazards. Dusts may cause mechanical irritations to eyes and skin. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. Higher dust exposures may cause difficulty breathing, congestion, and chest tightness.	
EYE CONTACT:	If present as dust, copper may cause irritation, discoloration, and damage. As a foreign body in the lens, copper dust may cause a dense cataract and discolor the lens.
SKIN:	Copper can cause some irritation with possible discoloration of skin.
INGESTION:	Ingestion of significant amounts of welding electrodes is unlikely. If copper is swallowed and person is conscious, give large quantities of water to drink. Get medical attention as soon as possible. Serious effects may occur if large amounts of dust are swallowed.

INHALATION:	Breathing metal dust may worsen symptoms of individuals with pre-existing chronic respiratory disease. Follow exposure guidelines for copper dust and fume. Acute exposure to dust or fume may cause upper respiratory tract irritation, metallic taste in mouth, nausea, fatigue, and/or metal fume fever. Breathing copper dust may worsen symptoms of individuals with pre-existing chronic respiratory disease.

Carcinogen Classification of Ingredients

Ingredient	OSHA	NTP	IARC	Target Organ
None	-----	----	----	

TERMS:

OSHA – Occupational Safety & Health Administration
- Y = Listed as a human carcinogen

NTP – National Toxicology Program
- K = Known to be a human carcinogen
- R = Reasonably anticipated to be a human carcinogen (RAHC)

IARC – International Agency for Research on Cancer
- 1 = Carcinogenic to humans
- 2A = Probably carcinogenic to humans
- 2B = Possibly carcinogenic to humans
- 3 = Unclassifiable as to carcinogenicity to humans
- 4 = Probably not carcinogenic to humans

Other –
- NL = Not listed

SECTION 12 – ECOLOGICAL INFORMATION

ECOTOXICITY Not applicable	PERSISTENCE AND DEGRADABILITY Not applicable
BIOACCUMULATION POTENTIAL Not applicable	MOBILITY IN SOIL Not applicable

OTHER ADVERSE EFFECTS

Copper metal is relatively insoluble in water and, therefore, generally has low bioavailability. This product is not expected to present an environmental hazard. Avoid releasing dusts and fumes into the environment.

SECTION 13 – DISPOSAL CONSIDERATIONS

Recover or Recycle if possible. Dispose of according to Federal, State and Local Regulations. Dust collected from machining, welding, etc. may be classified as a hazardous waste. Consult Federal, State and Local regulations.

SECTION 14 – TRANSPORT INFORMATION

US DEPT OF TRANSPORTATION (DOT)-HMR (Hazardous Materials Registration) Not regulated	CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG) Not regulated
UN SHIPPING NAME Not regulated	UN NUMBER Not regulated
TRANSPORT HAZARD CLASS Not regulated	PACKING GROUP Not regulated
ENVIRONMENTAL HAZARDS None	LABEL(S) REQUIRED? No

TRANSPORT IN BULK Not applicable	SPECIAL SHIPPING INFORMATION Not applicable

SECTION 15 - REGULATORY INFORMATION

US-OSHA (HAZARD COMMUNICATION STANDARD)
References
SARA TITLE III SECTION 302 (40CFR 355), SARA TITLE III 311/312 (40 CFR 370), SARA TITLE III 313 (40 CFR 372)

Component	CAS #	% By Weight
Copper	7440-50-8	N/A
Iron	1309-37-1	N/A
Mica	12001-26-2	N/A
Clay/Sand	1332-58-7	N/A
Binders	1334-09-8	N/A

US-EPA (TOXIC SUBSTANCES CONTROL ACT – TSCA)
All components of these products are on the TSCA inventory list or are excluded from listing.
US-EPA (SARA TITLE III)
Releases to the environment of **Copper** may be subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CANADA-WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM)
This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains the information required by the CPR.

CANADA DSL (DOMESTIC SUSTANCES LIST) INVENTORY STATUS
All components of these products are on the DSL Inventory.

CEPA (CANDIAN ENVIRONMENTAL PROTECTION ACT)
No components are on the Toxic Substances List.

EINECS NO. (EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES)
All components of these products are on the EINECS list.

RoHS (RESTRICTION OF CERTAIN HAZARDOUS SUBSTANCES) COMPLIANCE
Castings comply with RoHS.

CALIFORNIA PROPOSITION 65 COMPLIANCE
Copper is not on California's Proposition 65 list. (California Health & Safety Code 25248.5 et seq.)

US STATE REGULATORY INFORMATION
Some of the components listed I Section 3 (e.g., Copper) may be covered under specific state regulations.

SECTION 16 – OTHER INFORMATION

SDS PREPARED BY The information herein is given in good faith and based on technical date The Electric Materials Company believes to be reliable. Since the conditions of use are outside our control, we assume no liability in connection with any use of this information and no warranty, expressed or implied is given. Contact the Electric Materials Company or its associates for additional information.	DATE 05/2015

NOTE:

This data and label information is offered in good faith as typical values and not as a product specification. No warranty either expressed or implied is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally acceptable. However, each user should review the recommendations in specific context of the intended use and determine if they are appropriate.

LABEL Information:

We have no current labels for COMMNONSBC.