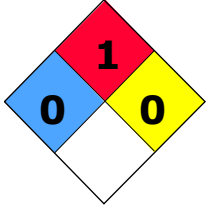


# MATERIAL SAFETY DATA SHEETS



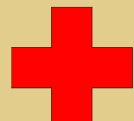
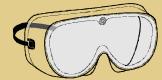
## AC MOTOR RUN CAPACITOR. (WET METAL CASE)

### ROUND CAPACITORS.

- Aluminum or Steel case, tin plated steel cover
- Pressure interrupter is UL 810 recognized
- Self-clearing metallized polypropylene film
- Non PCB dielectric fluid which is environmentally hazard free
- Capacitor meets or exceeds the requirements listed in EIA-456A
- Capacitor meets or exceeds the requirements listed in EIA 186 as cycled damp heat

### OVAL CAPACITORS.

- Aluminum or Steel case, tin plated steel cover
- Pressure interrupter is UL 810 recognized
- Self-clearing metallized polypropylene film.
- Non PCB dielectric fluid which is environmentally hazard free
- Capacitor meets or exceeds the requirements listed in EIA-456A
- Capacitor meets or exceeds the requirements listed in EIA 186 as cycled damp heat



FIRST AID



Nueva Generación Manufacturas S.A. de C.V.  
Av. Tezozomoc 239 Ind. San Antonio Azcapotzalco, México D.F.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

#### INDEX.

INDEX	1
INTRODUCTION	2
MATERIAL SAFETY DATA SHEET	3
MSDS BY MATERIAL OF CAPACITOR	5
Aluminum case (round/oval)	7
Plastics	12
PPM alloy film	29
PP NDF film	33
Metallic (Steel/Sn) cover (round/oval)	37
Red Adhesive	50
Silicon	57
Additive SAS-40E	64
Canola Oil	70
Terminals and Steel Rivet	75
Wires	79
Resin	90

## **MATERIAL SAFETY DATA SHEET**

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

#### **INTRODUCTION.**

The NG DRY A.C. MOTOR RUN CAPACITORS are manufactured with a dielectric material that consists of two sheets of segmented or non segmented polypropylene film; each one with a thin layer of vacuum deposited metal on one side. Metals are selected according to final application including aluminum, aluminum/zinc or zinc, only any of them acting as an electrode in the capacitor; because this metal is just a few hundred angstroms thick, it has a very limited current carrying capability at any single point in the dielectric. To compensate this limitation, the entire edge of each electrode is bonded by a metalized endspray that has a relatively high current withstanding capability. The endspray serves as the termination point of the electrode. This current capability is enhanced by soldered or welded end terminations.

These capacitors are self-healing, a property of the metalized film to restore itself to an operating condition when a dielectric breakdown occurs during operation.

The thin metal layer around the fault point will act like a low current carrying fuse. Under a fault condition, the current will evaporate the metal around the fault point and clear the fault. This is accomplished by special frame work of the film with a specific ohmic resistivity and low melting point temperature the evaporation of the electrode will result in a capacitance loss that is virtually unmeasurable. All films for capacitors have particularly low dielectric losses, high level of insulation and dielectric strength.

It is presented the Material Safety Data Sheet of AC motor run capacitors (wet metal case), this information relates to the specific materials designated and may not be valid for such material used in condition with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness, and we do not accept liability for any loss or damage that may occur from the use of this information. Final determination of suitability of any material is the sole responsibility of the user. All material should be used with caution to guard against hazards. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist.

NGM.

## **MATERIAL SAFETY DATA SHEET**

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

#### **Material Safety Data Sheets.**

MSDSs are the most basic source of hazardous chemical information. An employer shall have an MSDS for each hazardous chemical used in the workplace. The MSDS summarizes the chemical's properties, the health and physical hazards, and related safety information.

The MSDSs is a compilation of information required under the OSHA( Occupational Safety and Health Administration ) communication Standard on the identity of hazardous chemicals, health, and physical hazards, exposure limits, and precautions.

OSHA requires that each MSDS be in English (although the employer may maintain copies in other languages as well) and contain at least the following information.

#### **Product Information.**

The chemical identity, as used on the container label, shall appear on the MSDS. The physical and chemical characteristics of the hazardous chemical shall appear on the MSDS. Examples include vapor pressure, appearance, odor, and flash point.

#### **Hazardous information.**

The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions that are generally recognized as being aggravated by exposure to the chemical shall be listed on the MSDS.

The physical hazards of the hazardous chemical shall be listed on the MSDS.

#### **Exposure.**

The hazardous chemical's primary route(s) of entry shall be listed on the MSDS. Chemicals may enter the body through the following routes: inhalation, ingestion, injection, and skin or eye contact.

The chemical manufacturer, importer, distributor, or employer preparing the MSDS shall include the OSHA permissible exposure limit, and any other exposure limit used or recommended by the individual(s) preparing the MSDS.

The chemical manufacturer, importer, distributor, or employer preparing the MSDS shall provide information that identifies carcinogens. OSHA cites the following three sources that list known or suspected carcinogens:

National Toxicology Program (NTP) Annual Report on Carcinogens

International Agency for Research on Cancer (IARC) Monographs

OSHA list of cancer suspect agents

#### **Handling and Use.**

The chemical manufacturer, importer, distributor, or employer preparing the MSDS shall include precautions for safe handling and use of the hazardous chemical. The MSDS shall provide

## **MATERIAL SAFETY DATA SHEET**

---

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

information on proper protective clothing and respiratory protection. Spill control and clean-up procedures shall also be provided on the MSDS.

#### **Control Measures.**

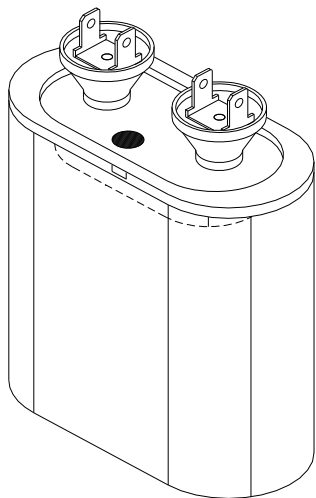
The MSDS shall list applicable exposure control measures for the hazardous chemical. Exposure control measures may include the use of engineering controls (e.g., localized ventilation), safe working procedures, or personal protective equipment (e.g., respirators).

#### **First Aid Procedures.**

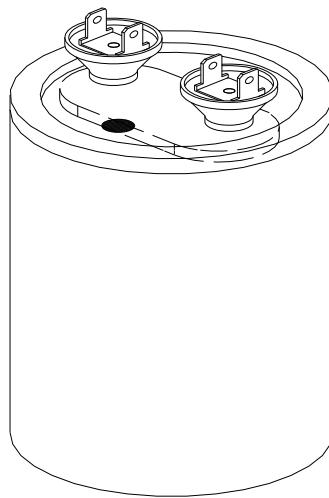
The MSDS shall provide emergency and first aid information.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

**OVAL CAPACITORS**



**ROUND CAPACITORS**



**APPLICATION**

Air Conditioning Systems, AC Motors, Compressors and others

**PRODUCT SPECIFICATION**

\* Capacitance Range:

ROUND: From 2 to 99  $\mu\text{F}$

OVAL: From 2 to 99  $\mu\text{F}$

\* Voltage Ratings:

370, 440 & 480 VAC Others voltages upon request.

**PRODUCT FEATURES**

- \* Aluminum or Steel case, tin plated steel cover
- \* Pressure interrupter is UL 810 recognized
- \* Self-clearing metalized polypropylene film
- \* Non PCB dielectric fluid which is environmentally hazard free
- \* Capacitor meets or exceeds the requirements listed in EIA-456A
- \* Capacitor meets or exceeds the requirements listed in EIA 186 as cycled damp heat
- \* UL810 File # 229850 section 2

All non-emergency questions should be directed to Customer Service for assistance.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

ALUMINUM CASE.  
ALUMINUM CASE.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

*ALUMINIUM METAL.*

---

**1. Product Identification.**

Synonyms: Aluminum wire; Aluminum foil; Aluminum shot; Aluminum uncrated nonpyrophoric

Molecular Weight: 26.98

Chemical Formula: Al

---

**2. Composition/Information on Ingredients.**

Ingredient	Percent	Hazardous
Aluminum Metal	95 - 100%	Yes

---

**3. Hazards Identification.**

Emergency Overview.

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 0 - None

Lab Protective Equip: GOGGLES; LAB COAT

Storage Colour Code: Orange (General Storage)

Potential Health Effects.

Inhalation:

Not expected to be a health hazard.

Ingestion:

Not expected to be a health hazard.

Skin Contact:

No adverse effects expected.

Eye Contact:

No adverse effects expected.

Chronic Exposure:

No adverse effects expected.

Aggravation of Pre-existing Conditions:

No adverse health effects expected.



---

#### **4. First Aid Measures.**

Inhalation:

Not expected to require first aid measures.

Ingestion:

Not expected to require first aid measures.

Skin Contact:

Not expected to require first aid measures.

Eye Contact:

Not expected to require first aid measures.

---

#### **5. Fire Fighting Measures.**

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

Use protective clothing and breathing equipment appropriate for the surrounding fire.

---

#### **6. Accidental Release Measures.**

Sweep, scoop or pick up spilled material. Package for reclamation or recovery. Package irreclaimable material for disposal in an approved waste disposal facility.

---

#### **7. Handling and Storage.**

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection.

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

15 mg/m<sup>3</sup> (TWA) total dust and 5 mg/m<sup>3</sup> (TWA)

respirable fraction for Aluminium metal as Al

-ACGIH Threshold Limit Value (TLV):

10 mg/m<sup>3</sup> (TWA) Aluminium metal dusts

Ventilation System:

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved):

Not expected to require personal respirator usage.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Safety glasses.

---

## 9. Physical and Chemical Properties.

Appearance: Bright, silver-white metal.

Odor: Odorless.

Solubility: Insoluble in water.

Density: 2.70

pH: No information found.

% Volatiles by volume @ 21C (70F): 0

Boiling Point: 2327C (4221F)

Melting Point: 660C (1220F)

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): 1 @ 1284C (2343F)

Evaporation Rate (BuAc=1): No information found.

---

## 10. Stability and Reactivity.

Stability: Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products: Toxic metal fumes may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

Incompatibilities: Mercury, halocarbons, halogens, water (with bulk aluminum powder) strong oxidizing agents, some acids, bases and many other materials.

Conditions to Avoid: Incompatibles.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

**11. Toxicological Information.**

No LD50/LC50 information found relating to normal routes of occupational exposure.

---NTP Carcinogen---

Ingredient	Known	Anticipated	IARC Category
Aluminium Metal (7429-90-5)	No	No	None

**12. Ecological Information.**

Environmental Fate: No information found.

Environmental Toxicity: No information found.

**13. Disposal Considerations.**

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

**14. Transport Information.**

Not regulated.

**15. Other Information.**

NFPA Ratings: Health: 0 Flammability: 0 Reactivity: 0

Label Hazard Warning: As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Label Precautions: None.

Label First Aid: Not applicable.

Revision Information: No Changes.

Disclaimer:

\*\*\*\*\*

NGM provides the information contained herein in good faith but makes no representation as to its

## **MATERIAL SAFETY DATA SHEET**

---

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. **NGM MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.**



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

PLASTICS.  
PLASTICS.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

NORYL.

**1.Product identification.**

PRODUCT IDENTIFIER: NORYL SEIGFNI-701

Polyphenylene ether /High impact polystyrene and/or polystyrene blend

**2.Composition/information on ingredients.**

Components listed below are physical or health hazards as defined in the Hazard Communication Standard. The quantities represent typical or average values for the materials shown. Additional compositional data are provided in Section 15, REGULATORY INFORMATION, subject to supplier notification requirements.

<u>Component Name</u>	<u>%</u>	<u>CAS Number</u>	<u>OSHA PEL</u>	<u>ACGIH TWA</u>	<u>GE Recommended Exp. Limits</u>
GLASS	7 - 13	65997-17-3	No PEL established	10 mg/m3 (resp. fr.)	Not established
PHOSPHORIC ACID, TRIPHENYL ESTER	1 - 5	115-86-6	3 mg/m3 TWA	3 mg/m3 TWA	Not established
CARBON BLACK	0.1 - 1	1333-86-4	3.5 mg/m3 TWA	3.5 mg/m3 TWA	Not established

**3.Hazards identification.**

EMERGENCY OVERVIEW:

- . Pellets with slight or no odor.
- . Spilled material may create slipping hazard.
- . Can burn in a fire creating dense toxic smoke.
- . Molten plastic can cause severe thermal burns.
- . Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation.

Severe over-exposure may result in nausea, headache, chills, and fever.

- . Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

HMIS Ratings: Health = 0; Flammability = 1; Reactivity = 0; PPE = B

POTENTIAL HEALTH EFFECTS

INGESTION: No hazard in normal industrial use.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

SKIN ABSORPTION: No absorption hazard in normal industrial use.

EYE CONTACT: Can cause mechanical irritation if dusts are generated.

SKIN CONTACT: Unlikely to cause irritation even on repeated contact.

#### CHRONIC / CARCINOGENICITY

NTP: Not Tested.

OSHA: Not Regulated.

IAR - Not-Listed

NOTE: OSHA, IARC and/or NTP have listed carbon black and heavy metals, present in some colorants, as carcinogens. If these colorants are present in this product, they are shown in SECTION 2. These colorants are essentially bound to the plastic matrix and are unlikely to contribute to workplace exposure under recommended processing conditions.

Processing fumes may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur.

Grease-like processing fume condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

MEDICAL RESTRICTIONS: There are no known human health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors.

---

#### 4. First Aid measures.

EYES: immediately flush eyes with plenty of water. Get medical attention if irritation develops or persists. After initial flushing, remove any contact lenses.

SKIN: wash with soap and water. Get medical attention if irritation develops or persists. For hot product immediately immerse in or flush affected area with large amounts of cold water to dissipate heat.

INGESTION: No hazard in normal industrial use. Do not induce vomiting. Seek medical attention if symptoms develop.

PROCESSING: PROCESSING FUMES INHALATION MAY BE IRRITATING TO THE RESPIRATORY TRACT. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

---

## **5.Fire fighting measures.**

**FIRE FIGHTING:** Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

**EXTINGUISHING MEDIA:** Water spray and foam. Carbon dioxide and dry chemical are not recommended because their lack of cooling capacity may permit re-ignition.

**CONDITIONS OF FLAMMABILITY:** Requires a continuous flame source to ignite. 490 C (914 F), estimated

**EXPLOSION DATA:** Material not sensitive to mechanical impact but is sensitive to static discharge under dust cloud conditions..

**HAZARDOUS COMBUSTION PRODUCTS:** Intense heat, smoke, carbon dioxide, carbon monoxide, hydrocarbon fragments

---

## **6.Accidental releases measures.**

**General:** Gather and store in a closed container pending a waste disposal evaluation. Allow molten material to solidify before disposal.

---

## **7.Handling and storage.**

**HANDLING:** Follow recommendations on label and in processing guide. Prevent contact with skin and eyes. Use good industrial hygiene practices. Provide adequate ventilation. Secondary operations such as grinding, sanding, or sawing may produce a dust explosion hazard. Use aggressive housekeeping activities to prevent dust accumulation: employ bonding, grounding, venting, and explosion relief provisions in accordance with accepted engineering practices.

**STORAGE:** Store in a cool dry place. Avoid excessive heat and ignition sources



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

**8.Exposure control/personal protection.**

ENGINEERING CONTROLS:A continuous up ply of fresh air to the workplace together with removal of processing fumes through exhaust systems is recommended. Processing fume condensate maybe a tire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.

Local ventilation requirements must be determined to limit exposure to processing fumes in the workplace.

**PERSONAL PROTECTION**

EYE/FACE: wear safety glasses with side shields or chemical goggles. In addition, use full-face shield when cleaning processing fume condensates from hoods, ducts, and other surfaces.

SKIN: When handling pellets or powder, avoid prolonged or repeated contact with skin. Wear long pants, long sleeves, well insulated gloves, and a face shield during melt processing. Appropriate clothing - including chemical resistant gloves -should be worn to prevent contact with processing fumes condensate.

RESPIRATORY: When using this product at elevated temperatures, implement engineering systems, administrative controls, or a respiratory protection program ( including respirator approved for protection from; organics vapor, acid gases, and particulate matter) if processing fumes are not adequately controlled or operators experience symptoms of overexposure. If dust or powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.

**9.Physical and chemical properties.**

PHYSICAL STATE:	Solid
COLOR:	Plastic pellet with slight odor.
MELTING POINT:	This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.
VAPOR PRESSURE (mmHg):	Negligible.
SPECIFIC GRAVITY (WATER = 1):	>1
WATER SOLUBILITY:	Insoluble
% VOLATILES:	Negligible
EVAPORATION RATE:	Negligible.
OCTANOL/WATER PARTITION COEFFICIENT:	Not established

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

**10. Stability and reactivity.**

REACTIYITY: Stable

STABILITY: Stable

REACTIYITY: Not reactive under recommended conditions of handling, storage, processing, and use.

CONDITIONS TO AVOID: Do not exceed melt temperature recommendations in product literature. In order to avoid auto-ignition /hazardous decomposition of hot thick masses of plastic, purgings should be collected in small, flat, shapes or thin strands to allow for rapid cooling. Quench in water. Do not allow product to remain in barrel at elevated temperatures for extended periods of time: purge with a general purpose resin. (See Section 8 for respiratory protection advice.)

HAZARDOUS DECOMPOSITION PRODUCTS: Processing fumes evolved at recommended processing conditions may include trace levels of the following materials: alkylphenols, aldehydes and alcohols, aliphatic amines, imethylcyclohexanone, trimethylanisole, dihydrobenzofuran, styrene, 4-vinylcyclohexene, phenols, triarylphosphate esters, cyclopentanone, carbon dioxide, carbon monoxide

**11. Toxicological information.**

ACUTE HEALTH HAZARDS

ACUTE ORAL:	Oral LD50 Rat >15 g/kg Oral toxicity is estimated from tests on similar materials.
EYE CONTACT:	Product not considered primary eye irritant. When similar products, in finely divided form, were placed into the eyes of rabbits, slight transient redness or discharge occurred. This is consistent with the expected slightly abrasive nature of the resin particles.
SKIN CONTACT:	Product not considered primary skin irritant. Draize Skin Primary Irritation Score (rabbit) for similar products, in finely divided form, for a 24-hour exposure is 0. Not expected to be a skin sensitizer based on results of Modified Buelher Guinea Pig Sensitization Test from similar products. Dermal LD50 (rabbit) > 2g/kg, estimated.
SUBCHRONIC TOXICITY:	In a 13 week dust inhalation study, laboratory rats were exposed to up to 50 mg/m <sup>3</sup> PPO dust for 6 hrs/day for 13 weeks with a 13-week non-exposure recovery period. There was no evidence of systemic toxicity at the highest dose. Localized toxicity was observed in the lungs and regional lymph nodes of the 50 mg/m <sup>3</sup> exposure group. These findings decreased in severity in the 7 and 1 mg/m <sup>3</sup> exposure groups. A no adverse effect level for PPO is estimated to be 7 mg/m <sup>3</sup> and a no observable effect level is 1 mg/m <sup>3</sup> .

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

#### CHRONIC HEALTH HAZARDS

#### CARCINOGENIC PROPERTIES

NTP:	Not Tested.
OSHA:	Not Regulated.
IARC:	Not Listed.
SPECIAL STUDIES:	<p>Triarylphosphate esters</p> <p>The triarylphosphate esters contained in this product have undergone extensive toxicology testing. They are not acutely toxic via oral (LD50's &gt;5 g/kg), dermal (LD50's &gt;2 g/kg), or inhalation (LC50's &gt;4.14 mg/L) routes of exposure. These triarylphosphate esters may be mild and transient skin and eye irritants and have not been shown to be sensitizers. They produce only minimal systemic effects at relatively high concentrations, consisting primarily of increase in liver and lung weight. The triarylphosphate were not mutagenic in bacterial and mammalian assays and did not produce chromosomal aberrations in either in vitro or in vivo test systems.</p> <p>In recent acute and delayed neurotoxicity studies in hens, these triarylphosphate esters were not found to be neurotoxic and did not inhibit neurotoxic esterase (NTE) activity. In reproductive and developmental toxicity studies, no adverse effects have been observed. Consistent with aryl phosphates, these substances inhibit plasma acetylcholinesterase (AChE) and monocyte nonspecific esterase (MNSE). However, when tested in an extensive and validated immunotoxicity testing battery, MNSE staining inhibition showed no adverse effects on immune system function. This staining phenomenon has not be observed at exposures below 10ug/m3.</p> <p>Carbon Black:</p> <p>The International Agency for Research on Cancer (IARC) has determined that carbon black is a class 2B known animal and possible human carcinogen by the route of inhalation. Rats exposed to high doses of carbon black by inhalation developed statistically significant increases in lung fibrosis and lung tumors.</p>

---

## 12. Ecological information.

General: This material is not expected to be harmful to the ecology

WASTE DISPOSAL: Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.

POSSIBLE EPA WASTE CODES: No data.

---

## 13. Transportation information.

REGULATORY STATUS: Not Regulated.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

**14.Regulatory information.**

TOXIC SUBSTANCES CONTROL ACT (TSCA): This product is in compliance with all rules and orders of TSCA.

WHMIS PRODUCT CLASSIFICATION: Not a controlled product.

If any components in this product are SARA 313 listed as reportable, they are shown below. The quantities listed for elements represent typical or average values for compounds containing the element.

Component	CAS NUMBER	%
Zinc	7440-66-6	0.1-1

If any components in this product are known to the State of California to cause cancer and/or are reproductive hazards, they are listed below:

Component	Reason Listed	CAS Number	%
Not Applicable			
Toluene	developmental toxicity - initial date 1/1/91	108-88-3	0.01 - 0.1

**15.Other information.**

DISCLAIMER: This Material Safety Data Sheet [MSDS] information is provided based on the Hazard Communication Regulations for your region or country and for the use of the persons required to receive this information under those regulations. The information is neither designed nor recommended for any other use or for use by any other person, including for compliance with other laws. NGM does not warrant the suitability for use of this MSDS for any other material or product not specifically identified herein. NGM does not warrant the accuracy or authenticity of this MSDS unless it has been obtained directly from NGM, or posted or viewed on a NGM website. Modification of this MSDS, unless specifically authorized by NGM, is strictly prohibited. This MSDS is based on information, that is believed to be reliable, but may be subject to change as new information becomes available. Because it is not possible to anticipate all conditions of use, additional safety precautions may be required. Since the use of this material is not under NGM's control, each user is responsible for making its own determination as to the safe and proper handling of this material in its own particular use of this-material.

NGM MAKES NO REPRESENTATION OR WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

## **MATERIAL SAFETY DATA SHEET**

---

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

Each user should read and understand this information and incorporate it into individual site safety programs as required by applicable hazard communication standards and regulations.

#### **ABBREVIATIONS:**

ACGIH: American Conference of Governmental industrial Hygienists

CAS: Chemical Abstracts Service

CFR: Code of Federal Regulations

CPR: Cardiopulmonary Resuscitation

EPA: Environmental Protection Agency

HMIS: Hazardous Material identification System (National Paint and Coatings Association)

IARC: International Agency for Research on Cancer

OSHA: Occupational Health and Safety Administration (U.S.)

NTP: National Toxicology Program

PEL: Permissible Exposure Limit

PPE: Personal Protective Equipment

SARA 313: Superfund Amendments and Reauthorization Act, Section 313

TLV: Threshold Limit Value

TSCA: Toxic Substance Control Act

WHMIS: Workplace Hazardous Materials information System (Canada)

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

MYLAR FILM.

**1. Product Identification.**

The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont Teijin Films Material Safety Data Sheet

"MYLAR" POLYESTER FILM (NOT INCLUDING POLYVINYLIDENE CHLORIDE COATED TYPES)

Material Identification.

Mylar is a registered trademark of DuPont Teijin Films.

Product Use: OSHA Hazard Communication Standard (29 CFR 1910.1200) requirements for Material Safety Data Sheets do not apply to the product described in this information sheet. This product is excluded as an article.

**2. Composition/Information on Ingredients.**

Components

Material	CAS Number	%
Oriented polyester film. May contain a coextrusion layer. Various fillers or additives used to modify the physical appearance and/or surface properties may be present.	100	

Base Film:

Polyethylene Terephthalate	25038-59-9	55-100
----------------------------	------------	--------

Coextrusion layer (if present):

Isophthalate Copolymer	24938-04-3	8-20
------------------------	------------	------

The following Fillers and/or Additives may be present in one or more film types:

Poly(Ethylene/Vinyl Acetate)		<25
Barium Sulfate	7727-43-7	<20
Titanium Dioxide	13463-67-7	<20
Styrene Block Copolymer		<20
Polyterpene Polymer		<18
Acrylic Polymer		<5
Polypropylene	9003-07-0	<5
Polyvinyl Alcohol	9002-89-5	<5
Silica	7631-86-9	<1

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

Silicone		<1
Carbon Black (only in black films)	1333-86-4	<1
Aluminium	7429-90-5	<1
Aluminium Oxide	1344-28-1	<1
Components (Remarks)		

### 3. Hazards Identification.

Emergency Overview

Appearance: Solid film

Odor: Odorless

No known health hazards at ambient temperature.

Read the entire MSDS for a more thorough evaluation of the hazards.

Potential Health Effects

High temperature operations using "Mylar" Films can produce fumes or vapors of decomposition products of polyethylene terphthalate and isophthalate polymer. The type and quantity of the fumes or vapors will vary based on temperature, time and other variables. These fumes or vapors may cause eye, nose, throat or respiratory irritation, or other effects such as headache.

Molten polymer can cause thermal burns.

Exposure to components used as fillers is not likely as these are encapsulated in the polymer and fully incorporated into the film.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material	IARC	NTP	OSHA	ACGIH
Titanium Dioxide	2B			
Carbon Black (only in black films)	2B			

### 4. First Aid Measures.

First Aid

INHALATION

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. However, if exposed to fumes from overheating or combustion, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician if necessary.

## **MATERIAL SAFETY DATA SHEET**

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

#### **SKIN CONTACT**

The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable.

If molten material gets on skin, cool rapidly with cold water. Do not attempt to remove material from skin. Obtain medical treatment for thermal burn.

#### **EYE CONTACT**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

#### **INGESTION**

Ingestion is not an expected route of exposure during normal use of the product. If ingested, consult a physician immediately.

#### **Notes to Physicians**

Prolonged eye irritation may occur from pieces of debris sticking to the eyeball or eyelids.

---

## **5. Fire Fighting Measures.**

#### **Flammable Properties**

Non-metalized films can be combusted only by remaining in contact with flame. If flame source is stationary, non-metalized films will shrink away and self-extinguish.

Non-metalized film remaining in contact with flame can continue to burn slowly, dropping flaming liquid which can spread the fire. Metalized films may support combustion if ignited.

Hazardous gases/vapors produced in fire are carbon dioxide, carbon monoxide, organic acids, aldehydes, alcohols.

During processing, film may pick up a strong static charge. Avoid discharge into dust or solvent laden air as a flash fire or explosion may result.

#### **Extinguishing Media**

Water, Foam, Dry Chemical, CO<sub>2</sub>.

#### **Fire Fighting Instructions**

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment.



## 6. Accidental Release Measures.

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Sweep up to avoid slipping hazard.

---

## 7. Handling and Storage.

Handling (Personnel)

Do not breathe vapors or fumes that may be evolved during processing.

Avoid skin contact with sharp film edges.

Handling (Physical Aspects)

Rolls of film may telescope. Use caution when handling.

Rolled film should be stored at intended processing temperature for approximately 24 hours prior to use.

Plastic packaging materials can pick up static charge.

Polyester film rolls packaged with shrink-wrap (or other plastic over wrap) should be opened or unwrapped only in non-process areas where ignition sources such as solvents are not in use or in storage.

Storage

Store away from heat and sources of ignition. Do not store in direct sunlight. Avoid prolonged storage in high or low temperatures. Recommended storage temperatures are 20 F (-7 C) to 100F (38 C).

## 8. Exposure Controls/Personal Protection.

### Engineering Controls

General exhaust is acceptable except where overheating can occur during processing. High temperature operations may require use of local exhaust ventilation to keep employee exposure below recommended limits.

Movement of film over metal or rollers will produce a surface static charge on the film. Consider processing design and procedures that will reduce or dissipate this charge, and eliminate the possibility of unwanted electrical discharge to people, equipment and materials.

### Personal Protective Equipment

#### EYE/FACE PROTECTION

Wear safety glasses.

#### RESPIRATORY PROTECTION

Respirators are not needed for normal use.

Where airborne concentrations are expected to exceed exposure limits, a NIOSH approved respirator should be selected based on the form and concentration of the contaminant in air and in accordance with OSHA Respiratory Protection Standard CFR 1910.134.

#### PROTECTIVE CLOTHING

If there is potential for contact with hot/molten material, wear heat resistant impervious clothing and footwear.

Special protective clothing is not needed for normal use. Gloves are recommended as good industrial practice.

### Exposure Guidelines

#### Applicable Exposure Limits

##### Polyethylene Terephthalate

PEL (OSHA) : None Established

TLV (ACGIH) : None Established

AEL \* (DuPont) : 10 mg/m<sup>3</sup>, 8 Hr. TWA, total dust

5 mg/m<sup>3</sup>, 8 Hr. TWA, respirable dust

##### Aluminum Oxide

PEL (OSHA) : 15 mg/m<sup>3</sup>, total dust, 8 Hr. TWA

5 mg/m<sup>3</sup>, respirable dust, 8 Hr. TWA

TLV (ACGIH) : 10 mg/m<sup>3</sup>, total dust, 8 Hr. TWA, A4

AEL \* (DuPont) : None Established

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

---

## 9. Physical and Chemical Properties.

### Physical Data

Form : Transparent film  
Color : Colorless to black (depending on film type)  
Odor : Negligible  
Melting Point : ~260 C (~500 F) (PET base film - coextrusion layer or coatings may melt at lower temperatures)  
Solubility in Water : Insoluble  
Specific Gravity : 1.2-1.4  
Vapor Pressure : Negligible @ 20 C (68 F)

---

## 10. Stability and Reactivity.

### Chemical Stability

Stable at normal temperatures and storage conditions.

### Incompatibility with Other Materials

Strong acids and bases may hydrolyze the film.  
Avoid contact with strong oxidizing agents.

### Decomposition

Combustion can produce carbon oxides and hydrocarbon oxidation products, including organic acids, aldehydes, alcohols, ketones and acrolein.

### Polymerization

Polymerization will not occur.

---

## **11. Toxicological Information.**

Animal Data

Polyethylene Terephthalate

Oral ALD: > 10,000 mg/kg in rats

Polyethylene Terephthalate is not a skin irritant, but is a mild eye irritant.

Toxic effects from short exposures by inhalation resulted in no adverse effects.

Toxic effects from short exposures by ingestion resulted in no adverse effects.

Animal testing indicates that Polyethylene Terephthalate does not have carcinogenic, mutagenic, developmental or reproductive effects.

---

## **12. Ecological Information.**

Ecotoxicological Information

AQUATIC TOXICITY:

No information is available. Toxicity is expected to be low based on insolubility in water.

---

## **13. Disposal Considerations.**

Waste Disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

---

## **14. Transport Information.**

U.S. Federal Regulations

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.

CLEAN AIR ACT STATUS: This product does not contain, and is not manufactured with ozone depleting chemicals as defined in 58 FR 8136, February 11, 1993 (final rule).

State Regulations (U.S.)

CONEG STATUS: All "Mylar" products are compliant with CONEG regulations; the sum of the concentrations of cadmium, chromium, lead and mercury does not exceed 100 ppm. None of these metals is used as an ingredient or processing aid.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCE LIST THAT MAY BE PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES): Barium Sulfate; Titanium Oxide (TiO<sub>2</sub>); Carbon Black (black films only).

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST THAT MAY BE PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): Barium Compounds; Titanium Dioxide; Carbon Black (black films only).

CALIFORNIA PROPOSITION 65 STATUS: The products described herein do not contain substances that require a warning pursuant to Propositions 65.

---

**15. Other Information.**

NFPA, NPCA-HMIS

NFPA Rating  
Health : 1  
Flammability : 1  
Reactivity : 0

NPCA-HMIS Rating  
Health : 0  
Flammability : 1  
Reactivity : 0

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

PPM ALLOY FILM.  
PPM ALLOY FILM.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

*PPM ALLOY FILM.*

**1. Product Identification.**

PRODUCT NAME: POLYPROPYLENE FILM.  
TYPES PP – PPCI – PPR – PPTS.

CHEMICAL NAME. POLYPROPYLENE HOMOPOLYMER.  
DEPARTMENT OF TRANSPORTATION: HAZARD CLASS: NOT REGULATED.

**2. Composition/Information on Ingredients.**

There is no chemical present in this product at a concentration of 0.1 % or more classified as a carcinogen by IARC, NTP or OSHA.

**3. Physical Data.**

Melting point: 165 °C  
Specific gravity: 0.9.  
Solubility in water: insoluble  
Form: Solid.  
Appearance: Film.  
Color: Clear.  
Odor: None.

**4. Fire and Explosion Data.**

Flash ignition temp: 360 °C.  
Method: ISO/R 871.  
Fire and explosion hazards: During processing film can pick up static charge.  
Discharge into dust or solvent laden air may cause flash fire or explosion.  
Extinguishing media: water, powder, carbon dioxide.  
Special fire fighting instructions: use self-contained breathing apparatus if exposed to fumes.

---

## 5. Hazardous reactivity.

Condition to avoid: none known.

Materials to avoid: none known.

Hazardous combustion and decomposition products: incomplete combustion may produce carbon monoxide, carbon dioxide, acrolein and aldehydes.

---

## 6. Health hazard information.

Acute effects of exposure ingestion (swallowing): none known.

Inhalation (breathing): not volatile, irritating vapors may be released at temperature above about 300 °C.

Skin contact: not a skin irritant.

Eye contact: not likely route of exposure.

Chronic effects of exposure: none known.

---

## 7. Emergency and first aid procedure.

Ingestion (swallowing): not a likely route of exposure.

Inhalation (breathing): not a route of exposure. If exposed to fumes from overheating or from combustion, remove to fresh air.

Skin contact: not a skin irritant.

Eye contact not a likely route of exposure.

---

## 8. Disposal procedures.

Aquatic toxicity: not toxic.

Spill, leak or release: Pick up film to prevent a slipping hazard.

Waste disposal: Forced draft incineration is possible, disposal method must conform to Federal, state and local regulations.

---

## 9. Protection information.

Ventilation: normal ventilation except at temperatures above 300°C where local exhaust is required.

Personal protective equipment:

Eye: safety glasses recommended for good industrial safety practice.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

Gloves: for handling hot film.  
Respirator: not required.  
Other: N/A.

---

**10. Special precaucions.**

No special hazards anticipated under conditions normally encountered in storage, handling, processing, use or disposal.

---

**11. Storage conditions.**

N/A.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

PP NDF FILM.  
**PP NDF FILM.**

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

PP NDF FILM.

#### 1. Product Identification.

Material Identification

Product Name: POLYPROPYLENE

Chemical Name: POLYPROPYLENE HOMOPOLYMER (PP)

Product Use: Thermoplastic for fabrication.

#### 2. HAZARDS IDENTIFICATION

Ingestion: Not a probable route of exposure.

Skin: Molten material will cause thermal burns.

Eye: Mechanical irritation only.

Inhalation: Stock shapes are not respirable, avoid breathing dust.

If exposed to fumes from overheating, move to fresh air. Consult a physician if symptoms persist. Wash skin with soap and plenty of water. Flush eyes with water. Consult a physician if symptoms persist. If molten material contacts skin, cool rapidly with cold water. Do not attempt to peel material from skin. Obtain medical attention to thermal burn. Chronic effects: Not known. Medical conditions generally aggravated by this material: No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product.

#### 4. Fire and explosion data.

Flash ignition temperature: NA

Unusual fire, explosion hazards: Emits toxic fumes under fire conditions.

Hazardous combustion products: Carbon monoxide and carbon dioxide.

Special fire fighting instructions: Fire fighters and others exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus.

Fire fighting equipment should be thoroughly decontaminated after use.

Extinguishing media: Water spray.

---

### **5. Accidental release measures.**

Spill or release: Clean up by vacuuming or sweeping to prevent falls.

Practice reasonable care and caution in handling.

---

### **6. Exposure control/personal protection.**

Eye: Safety glasses are recommended to prevent particulate matter from entering eyes while grinding or machining.

Skin: Protective gloves are required when handling hot polymer. Also, long sleeve cotton shirt and long pants if handling molten polymer.

Ventilation: Local exhaust at processing equipment to assure that particulate levels are kept at recommended levels.

Respirator: None under normal processing, if ventilation is adequate.

---

### **7. Handling and storage.**

Appearance: Stock shape may be rod, sheet or tube form.

Odour: Essentially odourless.

Melting point: 160-175°C / 320-347°F

Solubility in water: Insoluble

Volatile content %: <1%

Specific gravity: 0.900-0.910

Stability at room temperature: Stable

Materials to avoid: Strong oxidising agents.

Conditions to avoid: None known.

---

### **8. Toxicological information.**

Chronic toxicity: Polypropylene does not appear to possess any toxicological properties.

Medical conditions prone to aggravation by exposure: Thermal decomposition products of Polypropylene have been reported to be irritating to the mucus membranes and respiratory tract.

Carcinogenicity: None known.

Aquatic toxicity: Toxicity is expected to be low based on insolubility of polymer in water.

Spill or release: Clean up by vacuuming or wet sweeping to minimize dust exposure.

Waste disposal: Landfill or incineration in compliance with federal, state, and local regulations.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

Hazard class: NA  
Shipping name: NA

---

#### 9. Other information.

This product contains no known toxic chemicals.

Prepared by: NGM

The information set forth herein has been gathered from standard reference materials and/or supplier test data and is to the best knowledge and belief, accurate and reliable. Such information is offered solely for your consideration, investigation and verification, and it is not suggested or guaranteed that the hazard precautions or procedures mentioned are the only ones, which exist. NGM makes no warranties, expressed or implied, with respect to the use of such information or the use of the specific material identified herein in combination with any other material or process, and assumes no responsibility.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

METALLIC COVER (ROUND/OVAL).  
**METALLIC COVER (ROUND/OVAL).**

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

STEEL.

**1. PRODUCT IDENTIFICATION**

**Trade Number:** Carbon and Alloy Steels

**CAS Number:** Not applicable

**Synonyms:** Steels

**Use/Description:** Plate products

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS No.	% Weight	Exposure Limits			
			ACGIH TLV (mg/m <sup>3</sup> )		OSHA PEL (mg/m <sup>3</sup> )	
<b>Base Metal:</b>						
Iron (Fe)	7439-89-6	Balance	5	Oxide Dust/Fume	10	Oxide Dust/Fume
<b>Alloying Elements</b>						
Aluminum (Al)	7429-90-5	0-0.10	10 5	Dust Fume	15 5	Dust Respirable fraction
Antimony (Sb)	7440-36-0	<0.9	0.5	As Antimony	0.5	As Antimony
Arsenic (As)	7440-38-2	<0.09	0.01	As Arsenic (A1 Carcinogen)	0.01	As Arsenic
Beryllium (Be)	7440-41-7	<0.09	0.002 0.01	As Beryllium (A1 Carcinogen) As Beryllium (STEL)	0.002 0.005	As Beryllium As Beryllium (Ceiling)
Boron (B)	7440-42-8	<0.9	10	Oxide Dust	15	Oxide Dust
Cadmium (Cd)	7440-43-9	<0.09	0.01 0.002	As Cadmium (A2 Carcinogen) Respirable fraction	0.005 0.0025	As Cadmium As Cadmium (Action Level)
Calcium (Ca)	1305-78-8	<0.9	2	Oxide Dust	5	Oxide Dust
Carbon (C)	7440-44-0	0.04-0.95		Not Established		Not Established
Chromium (Cr)	7440-47-3	0.01-1.0	0.5	Metal	1	Metal
Cobalt (Co)	7440-48-4	<0.09	0.02	As Cobalt (A3 Carcinogen)	0.1	Metal/Dust/Fume
Copper (Cu)	7440-50-8	<0.9	1 0.2	Dust Fume	1 0.1	Dust Fume
Lead (Pb)	7439-92-1	0.0-0.09	0.05	Dust / Fume (A3 Carcinogen)	0.05	Dust / Fume
Magnesium (Mg)	7439-95-4	<0.9		Not Established		Not Established
Manganese (Mn)	7439-96-5	0.2-2	0.2	Elemental Mn and Inorg Compounds	5	Fume (Ceiling)
Molybdenum (Mo)	7439-98-7	<0.9	10	Insoluble Compounds	15	Insoluble Compounds
Niobium (Nb)	7440-03-1	<0.9		Not Established		
Nickel (Ni)	7440-02-0	0.01-1.0	1.5	Metal	1	Metal and Insoluble Compounds
Nitrogen (N)	7727-37-9	<0.9		Simple Asphyxiant		Simple Asphyxiant
Phosphorus (P)	7723-14-0	<0.9	0.1	Phosphorus	0.1	Phosphorus

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

Components	CAS No.	% Weight	Exposure Limits			
			ACGIH TLV (mg/m <sup>3</sup> )		OSHA PEL (mg/m <sup>3</sup> )	
Selenium (Se)	7782-49-2	<0.9	0.2	Selenium	0.2	Selenium
Silicon (Si)	7440-21-3	<0.9	10	Dust	15	Dust
Sulfur (S)	7446-09-05	<0.9	5.2 13	Sulfur Dioxide Sulfur Dioxide (STEL)	13	Sulfur Dioxide
Tin (Sn)	7723-14-0	<0.9	2	Metal, Oxide and Inorganic Compounds	2	Inorganic Compounds
Titanium (Ti)	7440-32-6	<0.9		Not Established		Not Established
Tungsten (W)	7440-33-7	<0.9	5 10	Insoluble Compounds as W Insoluble Compounds as W (STEL)		Not Established
Vanadium (V)	7440-62-2	<0.9	0.05	Oxide Dust/Fume	0.5 0.1	Oxide Dust (Ceiling) Oxide Fume (Ceiling)
Zinc (Zn)	7440-66-6	0.0-0.01	10 5 10	Oxide Dust Oxide Fume Oxide Fume (STEL)	5 10	Oxide Fume Oxide Dust

NOTE: No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. The above listing is a summary of elements used in alloying suppliers, but, we use a base material iron with component for allow carbon. Various grades of steel will contain different combinations of these elements and/or trace materials. Exact specifications can be found by calling the division and asking for a specifications sheet.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**WARNING! WELDING, SAWING, BRAZING, GRINDING, AND MACHINING MAY CAUSE DUSTS AND/OR FUME TO BE RELEASED. MAY BE HARMFUL IF INHALED. MAY IRRITATE THE EYES, SKIN, AND RESPIRATORY TRACT. MOLTEN MATERIAL MAY CAUSE THERMAL BURNS**

#### Potential Health Effects

Note: Steel products in their solid state under normal conditions, do not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.

#### Eye Contact

Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

#### Skin Contact

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.



## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

#### Inhalation

Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 to 48 hours.

#### Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

#### Chronic or Special Toxic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NTP, OSHA, or IARC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic, beryllium.

#### Target Organs

Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

#### Medical Conditions Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

---

## 4. FIRST AID MEASURES

**Eye Contact-** In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

**Skin Contact -** In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

**Inhalation -** In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in this MSDS develop.

**Ingestion -** Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

Notes to Physician - Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable leukocytosis. Treatment is symptomatic, and condition is self limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

---

## 5. FIRE FIGHTING MEASURES

Flash Point (Method) - Not applicable

Flammable Limits (% volume in air) - Not applicable

Autoignition Temperature - Not applicable

Extinguishing Media - For molten metal, use dry powder or sand.

Special Fire Fighting Procedures - Do not use water on molten metal. Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

Unusual Fire or Explosion Hazards - Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

---

## 6. ACCIDENTAL RELEASE MEASURES.

Precautions if Material is Spilled or Released - Emergency response is unlikely unless in the form of dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this MSDS (see section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, sewers, or waterways.

Environmental Precautions - Some grades of steel may contain reportable quantities of alloying elements. See Section 15 for additional information.

Waste Disposal Methods - Dispose used or unused product in accordance with applicable Federal, State, and Local regulations.

---

## 7. HANDLING AND STORAGE

Storage Temperatures - Stable under normal temperatures and pressures.

Precautions to be Taken in Handling and Storing - Store away from strong oxidizers. Dusts or powders may form explosive mixtures with air. Avoid breathing dusts or fumes.

---

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.

Eye Protection - Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shield should be used when welding or cutting.

Skin - Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water, and laundering or dry cleaning soiled work clothing.

Respiratory Protection - NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 2 for component material information exposure limits. If such concentrations are sufficiently high that this respirator is inadequate, or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting, and training standards and regulations.

Ventilation - Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure limits.

Exposure Guidelines - No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. See Section 2 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

---

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance and Odor - Red, Grey or other color steel panels, pulins, and built-up joists and trusses

Boiling Point - Not applicable

Melting Point - Approximately 2800 oF

pH - Not applicable

Specific Gravity (at 15.6 oC) - Not applicable

Density (at 15.6 oC) - Not applicable

Vapor Pressure - Not applicable

Vapor Density (air = 1) - Not applicable

% Volatile, by Volume - Not applicable

Solubility in Water - Insoluble.

Evaporation Rate (Butyl Acetate = 1) - Not applicable

Other Physical and Chemical Data

None

---

## 10. STABILITY AND REACTIVITY

Stability - Stable

Conditions to Avoid - Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume.

Hazardous Polymerization - Will not occur.

Incompatibility (Materials to Avoid) - Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.

Hazardous Decomposition Products - Metallic fumes may be produced during welding, burning, grinding, and possibly machining or any situation with the potential for thermal decomposition.

Refer to ANSI Z49.1

---

## 11. TOXICOLOGICAL INFORMATION

The primary component of this product is iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis.

Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion.

Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver. Iron and steel founding, but not iron or iron oxide, has been listed as potentially carcinogenic by IARC.

When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with the chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above), and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects. Evidence is stronger where welding materials contain known reproductive toxins, e.g., lead which may be present in the coating material of this product.

Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

**12. ECOLOGICAL INFORMATION**

Aquatic Ecotoxicological Data - No specific information available on this product.  
Environmental Fate Data - No specific information available on this product.

**13. DISPOSAL CONSIDERATIONS**

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. Dispose in accordance with federal, state, and local health and environmental regulations. Prevent materials from entering drains, sewers, or waterways.

**14. TRANSPORT INFORMATION**

DOT Proper Shipping Name - Not regulated  
DOT Hazard Classification - Not regulated  
UN/NA Number - Not applicable  
DOT Packing Group - Not applicable  
Labelling Requirements - Not applicable  
Placards - Not applicable  
DOT Hazardous Substance - Not applicable  
DOT Marine Pollutant - Not applicable

**15. REGULATORY INFORMATION**

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be hazardous.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)  
Steel is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches (RQ marked with a “\*”).

<u>Chemical Name</u>	<u>Reportable Quantity (in lb)</u>
Antimony	5000*
Arsenic	1*
Beryllium	10*

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

<u>Chemical Name</u>	<u>Reportable Quantity (in lb)</u>
Cadmium	10*
Chromium	5000*
Copper	5000*
Lead	10*
Nickel	100*
Phosphorus	1
Selenium	100*
Zinc	1000*

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III  
SECTION 311/312 HAZARD CATEGORIES: Immediate Health Effect, Delayed Health Effect  
This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right – To – Know Act of 1986 (40 CFR 372):

**SECTION 313 REPORTABLE INGREDIENTS:**

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Concentration (% by weight)</u>	<u>Reportable</u>
Aluminum	7429-90-5	<0.10	No – Less than 1%
Antimony	7440-36-0	<0.9	No – Less than 1%
Arsenic	7440-38-2	<0.09	No – Less than 0.1%
Beryllium	7440-43-9	<0.09	No – Less than 0.1%
Cadmium	7440-43-9	<0.09	No – Less than 0.1%
Chromium	7440-47-3	0.01-1.0	Yes – Greater than 0.1%
Cobalt	7440-48-4	<0.09	No – Less than 0.1%
Copper	7440-50-8	<0.9	No – Less than 1%
Lead	7439-92-1	0.0-0.09	No – Less than 0.1%
Manganese	7439-96-5	0.2-2	Yes – Greater than 1%
Nickel	7440-02-0	0.01-1.0	Yes – Greater than 0.1%
Phosphorus	7723-14-0	<0.9	No – Less than 1%
Selenium	7782-49-2	<0.9	No – Less than 1%
Vanadium	7440-62-2	<0.9	No – Less than 1%
Zinc	7440-66-6	<0.9	No – Less than 1%

Concentrations based on analytical data and process knowledge of typical products distributed by the facility.

## **MATERIAL SAFETY DATA SHEET**

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

#### **16. OTHER INFORMATION**

This product may be coated with a variety of materials, including oils, paints, galvanization, etc. that are not included in this MSDS. During welding precautions should be taken for airborne contaminants that may originate from components of the welding rod. Arc or spark generated when welding or burning could be a source of ignition or combustible and flammable materials. The information in this Material Safety Data Sheet (MSDS) was obtained from sources which we believe are reliable; however, the information is provided without any representation of warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of this product.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**  
**TIN METAL.**

**1.Product information.**

Material Safety Data Sheet

Health: 0

Flammability 0

Reactivity 0

Hazard Rating: 1

Least Slight Moderate High Extreme

0 1 2 3 4

NA = Not Applicable NE = Not Established

Product Name: Tin Metal

Trade/Chemical Synonyms

Formula: Sn

**2.Component Mixture**

Tin Metal

**3.Hazard Identification (Also see section 11)**

Generally not hazardous in normal handling, however good laboratory practices should always be used. Avoid long term exposure to skin or by inhalation.

**4.First Aid Measures**

Generally not hazardous in normal handling, however good laboratory practices should always be used. Avoid long term exposure to skin or by inhalation.

FIRST AID: SKIN: Wash exposed area with soap and water. If irritation persists, seek medical attention.

EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen

INGESTION: Give several glasses of milk or water. Vomiting may occur spontaneously, but it is not necessary to induce. Never give anything by mouth to an unconscious person.



## 5. Fire Fighting Measures

Fire Extinguisher Type: Special powder or dry sand. Do not use water!

Fire/Explosion Hazards: Dust at sufficient concentrations can form explosive mixtures with air.

Fire Fighting Procedure: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

## 6. Accidental Release Measures

Sweep up and place in suitable (fiberboard) containers for reclamation or later disposal.

## 7. Handling and Storage

Store in a cool dry well ventilated area. Keep away from heat and flame. Do not get in eyes, on skin, or on clothing.

## 8. Exposure Controls & Personal Protection

Respiratory Protection: NIOSH approved dust mask

Ventilation: Mechanical: Hand Protection: Gloves to prevent skin exposure as latex or vinyl

Local Exhaust: Eye Protection: Splash Goggles

Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

## 9. Physical and Chemical Properties

Melting Point: 232° C Specific Gravity 7.31

Boiling Point: 2507° C Percent Volatile by Volume: 0

Vapor Pressure: 1 @ 1609° C Evaporation Rate: N/A

Vapor Density: Information not available Evaporation Standard:

Solubility in Water: Insoluble Auto ignition Temperature: Not applicable

Appearance and Odor: Silvery granules or mossy flakes Lower Flamm. Limit in Air: Not applicable

Flash Point: N/A Upper Flamm. Limit in Air: Not applicable

## **10. Stability and Reactivity Information**

Stability: Stable Conditions to Avoid: Moisture

Materials to Avoid: Halogens, halogen trifluorides, sulfur, potassium peroxide, acids

Hazardous Decomposition Products: None

Hazardous Polymerization: Will Not Occur

Condition to Avoid: None known

## **11. Additional Information**

Effects of overexposure, Acute and Chronic: No effects expected to skin. May cause mechanical abrasion to eyes. Prolonged inhalation of dust or fume may result in a benign pneumoconiosis, producing distinctive changes in the lungs with no apparent disability or complications. Conditions aggravated/target organs: Persons with pre-existing eye, skin or respiratory conditions may be more susceptible.

DOT Classification: Not Regulated

DOT regulations may change from time to time. Please consult the most recent version of the relevant regulations.

The information contained herein is believed to be accurate and is offered in good faith for the user's consideration and investigation. No warranty is expressed or implied regarding the completeness or accuracy of this information, whether originating from Science Stuff, Inc. or from an alternate source. Users of this material should satisfy themselves by independent investigation of current scientific and medical information that this material may be safely handled.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

RED ADHESIVE.  
RED ADHESIVE.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**  
**RED ADHESIVE**

---

**1. Product Identification.**

PRODUCT NAME: METHYL SALICYLATE USP / NF

TRADE NAMES/SYNONYMS:

SALICYLIC ACID, METHYL ESTER; BENZOIC ACID, 2-HYDROXY-, METHYL ESTER;  
OHYDROXYBENZOIC ACID METHYL ESTER; 2-HYDROXYBENZOIC ACID METHYL  
ESTER; 2- (METHOXYCARBONYL)PHENOL; METHYL O-HYDROXYBENZOATE;  
METHYL 2-HYDROXYBENZOATE; OIL OF WINTERGREEN.

CHEMICAL FAMILY: esters, carboxylic, aliphatic

---

**2. Composition/Information on Ingredients.**

COMPONENT: METHYL SALICYLATE

PERCENTAGE: 99% min.

---

**3. Hazards Identification.**

NFPA RATINGS (SCALE 0-4):

HEALTH=2 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: colorless, yellow or red

PHYSICAL FORM: liquid

ODOR: minty odor

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, allergic reactions

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: no information on significant adverse effects

SKIN CONTACT:

SHORT TERM EXPOSURE: same as effects reported in short term ingestion, irritation, allergic reactions.

LONG TERM EXPOSURE: rash, ringing in the ears, and has caused liver damage in laboratory animals.

EYE CONTACT:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: no information on significant adverse effects

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

#### INGESTION:

SHORT TERM EXPOSURE: ringing in the ears, nausea, vomiting, diarrhea, difficulty breathing, headache, dizziness, disorientation, visual disturbances, lung congestion, kidney damage, reproductive effects, convulsions.

LONG TERM EXPOSURE: rash, and has caused liver damage in laboratory animals.

CARCINOGEN STATUS:

#### 4. First Aid Measures.

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated

clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

#### 5. Fire Fighting Measures.

FIRE AND EXPLOSION HAZARDS: Slight fire hazard.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low.

FLASH POINT: 205 F (96 C) (CC)

AUTOIGNITION: 849 F (454 C)

FLAMMABILITY CLASS (OSHA): IIIB

#### 6. Accidental Release Measures.

OCCUPATIONAL RELEASE: Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material.

Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry.

## 7. Handling and Storage.

STORAGE: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

## 8. Exposure Controls/Personal Protection.

### EXPOSURE LIMITS:

METHYL SALICYLATE: No occupational exposure limits established.

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any chemical cartridge respirator with organic vapor cartridge(s).

Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

## 9. Physical and Chemical Properties.

PHYSICAL STATE: liquid

COLOR: colorless, yellow or red

TEXTURE: oily

ODOR: minty odor

TASTE: minty taste

MOLECULAR WEIGHT: 152.16

MOLECULAR FORMULA: C<sub>8</sub>H<sub>8</sub>O<sub>3</sub>

BOILING POINT: 433 F (223 C)

FREEZING POINT: 18 F (-8 C)

VAPOR PRESSURE: 1 mmHg @ 54 C

VAPOR DENSITY (air=1): 5.24

SPECIFIC GRAVITY (water=1): 1.184

**AC MOTOR RUN CAPACITORS (Wet Metal case)**

WATER SOLUBILITY: slightly soluble

PH: Not available

VOLATILITY: Not available

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not available

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: alcohol, chloroform, ether, acetic acid

---

## 10. Stability and Reactivity.

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

INCOMPATIBILITIES: oxidizing materials

HAZARDOUS DECOMPOSITION: Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: Will not polymerize.

---

## 11. Toxicological Information.

METHYL SALICYLATE:

IRRITATION DATA: 500 mg/24 hour(s) skin-rabbit moderate; 500 mg/24 hour(s) eyes-rabbit mild; 100 percent skin-guinea pig severe; 100 percent eyes-guinea pig severe

TOXICITY DATA: 887 mg/kg oral-rat LD50

LOCAL EFFECTS: Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL: Moderately Toxic: ingestion

TARGET ORGANS: immune system (sensitizer)

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

ADDITIONAL DATA: May cross the placenta. May be excreted in breast milk. Interactions with drugs may occur.

---

## 12. Ecological Information.

Not available

### **13. Disposal Considerations.**

Dispose in accordance with all applicable regulations.

### **14. Transport Information.**

U.S. DEPARTMENT OF TRANSPORTATION: No classification assigned.

### **15. Regulatory information.**

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):  
Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):  
Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes

CHRONIC: Yes

FIRE: No

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS: California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:

EC CLASSIFICATION (CALCULATED): Xn Harmful

EC RISK AND SAFETY PHRASES:

R 22 Harmful if swallowed.

R 36 Irritating to eyes.

R 37 Irritating to respiratory system.

R 38 Irritating to skin.

R 43 May cause sensitization by skin contact.

R 64 May cause harm to breastfed babies.

S 2 Keep out of reach of children.

S 13 Keep away from food, drink and animal feeding stuffs.

S 25 Avoid contact with eyes.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36 Wear suitable protective clothing.



## **MATERIAL SAFETY DATA SHEET**

---

### **AC MOTOR RUN CAPACITORS (Wet Metal case)**

S 46 If swallowed, seek medical advice immediately and show this container or label.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL): Not determined.

CANADA INVENTORY (NDSL): Not determined.

NGM MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

SILICON.  
SILICON.

*SILICON TUBE.*

---

## 1. Product information.

Product Name: Silicon  
Synonym: N/A  
Chemical Name: Silicon  
Chemical Formula: Si

---

## 2. Composition/information on ingredients.

Silicon  
Toxicological Data on Ingredients: Silicon: ORAL (LD50): Acute: 3160 mg/kg [Rat].

---

## 3. Hazards identification.

Potential Acute Health Effects:  
Hazardous in case of inhalation.  
Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion.  
Potential Chronic Health Effects:  
CARCINOGENIC EFFECTS: Not available.  
MUTAGENIC EFFECTS: Not available.  
TERATOGENIC EFFECTS: Not available.  
DEVELOPMENTAL TOXICITY: Not available.  
Repeated or prolonged exposure is not known to aggravate medical condition.

---

## 4. First Aid measures.

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

**Serious Inhalation:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available.

---

### 5.Fire and explosion data.

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 780°C (1436°F)

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Some metallic oxides.

**Fire Hazards in Presence of Various Substances:** Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

**Risks of explosion of the product in presence of mechanical impact:** Not available.

**Risks of explosion of the product in presence of static discharge:** Not available.

**Slightly explosive in presence of heat.**

**Fire Fighting Media and Instructions:** Flammable solid.

**SMALL FIRE:** Use DRY chemical powder.

**LARGE FIRE:** Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

**Special Remarks on Fire Hazards:** Interaction of calcium and silicon is violently incandescent above 1050 deg. C after a short delay.

Amorphous or crystalline silicon both react exothermically when heated with alkali-metal carbonates attaining incandescence and evolving carbon monoxide.

**Special Remarks on Explosion Hazards:** Material in powder form, capable of creating a dust explosion.

Mixture of silicon, aluminum, and lead oxide explodes when heated.

Section 6: Accidental Release Measures

---

## **6. Accidental release measures.**

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill: Flammable solid.

Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift.

Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

---

## **7. Handling and storage.**

Precautions: Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

---

## **8. Exposure control/Personal protection.**

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Dust respirator. Boots.

Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product.

Suggested protective clothing might not be sufficient; consult a specialist

BEFORE handling this product.

Exposure Limits:

TWA: 5 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Respirable.

TWA: 10 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] Inhalation Total.

TWA: 15 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation Total. Consult local authorities for acceptable exposure limits.

---

## 9. Physical and chemical properties.

Physical state and appearance: Solid. (Crystals solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 28.09 g/mole

Color: Dark grey. Brown.

pH (1% soln/water): Not applicable.

Boiling Point: 2355°C (4271°F)

Melting Point: 1410°C (2570°F)

Critical Temperature: 4886°C (8826.8°F)

Specific Gravity: 2.33 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

---

## 10. Stability and reactivity data.

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances:

Reactive with oxidizing agents.

Slightly reactive to reactive with moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

May react violently or explosively on contact with water. Will react with water or steam to product hydrogen Incompatible (violent reactions) with chlorine, fluorine, oxidizers, calcium, carbide, alkali carbonates, iodine pentafluoride, cobaltic fluoride, rubidium carbide, MnF<sub>3</sub>, nitrosyl fluoride, AgF.

Mixtures of cesium acetylde with silicon react vigorously on heating.

Rubidium acetylde reacts vigorously with silicon on warming.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

---

### **11.Toxicological information.**

Routes of Entry: Inhalation. Ingestion.  
Toxicity to Animals: Acute oral toxicity (LD50): 3160 mg/kg [Rat].  
Chronic Effects on Humans: Not available.  
Other Toxic Effects on Humans:  
Hazardous in case of inhalation.  
Slightly hazardous in case of skin contact (irritant), of ingestion.  
Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans: Not available.  
p. 4  
Special Remarks on other Toxic Effects on Humans:  
Nuisance dust.  
Acute Potential Health Effects:  
Skin: May cause skin irritation from frictional action.  
Eyes: May cause eye irritation from frictional action.  
Inhalation: May cause respiratory tract irritation.  
Ingestion: May affect respiration (respiratory stimulation)

---

### **12.Ecological information.**

Ecotoxicity: Not available.  
BOD5 and COD: Not available.  
Products of Biodegradation:  
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.  
Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.  
Special Remarks on the Products of Biodegradation: Not available.

---

### **13.Disposal considerations.**

Waste Disposal:  
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

---

#### 14. Transport information.

DOT Classification: CLASS 4.1: Flammable solid.  
Identification: : Silicon powder, amorphous UNNA: 1346 PG: III  
Special Provisions for Transport: Not available.

---

#### 15. Regulatory information.

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).  
Health Hazard: 2  
Fire Hazard: 2  
Reactivity: 0  
Personal Protection: E  
National Fire Protection Association (U.S.A.):  
Health: 2  
Flammability: 2  
Reactivity: 1  
Specific hazard:  
Protective Equipment:  
Gloves.  
Lab coat.  
Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.  
Safety glasses.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

ADDITIVE SAS-40E.  
**ADDITIVE SAS-40E.**

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

*ADDITIVE SAS-40E*

---

**1.Product Identification.**

General Use: Insulating Oil for High-voltage Capacitors

Product Description: Blend of Substituted Aromatic Hydrocarbons

---

**2.Composition/information on ingredients.**

INGREDIENTS:

Benzyltoluene 52-65%

1,1-Diphenylethane 33-44%

1,2-Diphenylethane < 2%

Diphenylmethane < 2%

Epoxide\* < 1%

\*7-Oxabicyclohept-3yl methyl-7-oxabicycloheptane-3-carboxylate

---

**3.Hazard identification.**

EMERGENCY OVERVIEW

WARNING! Direct contact with liquid or vapors may cause skin or eye irritation.

POTENTIAL HEALTH EFFECTS

EYE CONTACT:

May cause transient eye irritation (tears, blurred vision and redness).

SKIN CONTACT:

Direct exposure may cause skin irritation (redness, swelling).

INGESTION

Single dose oral toxicity is low. Oral LD50 for rats is >2 grams/kg. If aspirated (liquid enters the lung), may cause lung damage due to chemical pneumonia, a condition caused by petroleum and petroleum-like solvents.

INHALATION:

Overexposure to alkyl-substituted aromatics may produce central nervous depression, headache, dizziness, in coordination, nausea and loss of appetite.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

---

#### 4. First-aid measures.

**EYE CONTACT:** Irrigate immediately with large amounts of water until irritation subsides. If irritation persists, seek medical attention.

**SKIN CONTACT:** Remove all contaminated clothing and wash affected area of skin with soap and water. Get immediate attention if irritation develops and persists.

**INGESTION:** If swallowed, DO NOT induce vomiting. Seek medical attention immediately.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately.

---

#### 5. Fire and explosion data.

##### FIRE HAZARD DATA

**FLASH POINT (COC)** 144°C (291°F)

**AUTOIGNITION TEMPERATURE:** 450°C (842°F) (estimated)

**EXTINGUISHING MEDIA:** Water fog, CO<sub>2</sub>, Dry Chemical

**SPECIAL FIRE FIGHTING PROCEDURE:**

Firefighter should wear normal protective equipment (full bunker gear) and positive-pressure self-contained breathing apparatus. Water or foam may cause frothing if it gets below the surface of the liquid and turns to steam. Water can be used to cool fire-exposed containers, to protect personnel and to disperse vapors and spills.

---

#### 6. Accidental release measures.

**SMALL SPILL:** Absorb spill with an inert material (e.g. clay, dry sand, or earth), and then place in chemical waste container.

**LARGE SPILL:** Contain spilled liquid with sand and earth. Transfer absorbed waste material into drums. Prevent runoff from entering into storm sewers and ditches, which lead to natural waterways.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

---

#### 7. Handling and storage information.

**HANDLING:** Areas of fluid handling should be well ventilated. Avoid contact with eyes. Avoid prolonged or repeated breathing of vapor and contact with skin.

**STORAGE:** Store in ventilated area, far from open flames and areas where danger of fire exists.

---

#### 8. Exposure controls/personal protection.

**SKIN PROTECTION:** Use impervious gloves and clean, long-sleeved body-covering clothing. Launder contaminated clothing and shoes before reuse.

**EYE PROTECTION:** Use safety glasses. Where contact with the liquid is likely, chemical goggles (with side shields) are recommended. If vapor exposure causes eye discomfort, use approved respirator.

**VENTILATION:** Adequate ventilation is essential for handling the fluid. Due to high vapor density, downflowing exhaust ventilation is recommended.

---

#### 9. Physical/chemical characteristics.

**BOILING POINT:** 270-290°C (518-554°F)

**VAPOR PRESSURE:** 0.00005 psi @ 70°F

**VAPOR DENSITY:** 6.3 (Air = 1)

**SOLUBILITY IN WATER:** 5 ppm

**SPECIFIC GRAVITY:** 1.00 (Water = 1)

**MELTING POINT:** <-65°C (<-85°F)

**APPEARANCE AND ODOR:** Clear non-viscous liquid with aromatic odor

---

#### 10. Stability and reactivity data.

**STABILITY:** Stable

**INCOMPATIBLE MATERIAL:** Strong oxidizing materials may ignite this material.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide and asphyxiants.

**HAZARDOUS POLYMERIZATION:** Will not occur.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

#### 11.Toxicological information.

Data generated without the epoxide additive.

ORAL ACUTE TOXITY: LD50, Rat: Male 2.7 gr/kg (14 days)

Female 2.2 gr/kg (14 days)

DERMAL ACUTE TOXICITY: LD50, Rat: Male/Female greater than 2 gr/kg

SKIN SENSITIZATION: Guinea pig, Bueler: Non sensitizing.

ACUTE DERMAL IRRITATION: Rabbit: Moderate Irritant

ACUTE EYE IRRITATION: Rabbit: Minimal Irritant

SUBACUTE TOXICITY: Rat, Oral, 28 days: No dead at maximum dose (1 gr/kg)

NOEL: 50 mg/kg/day

MUTAGENECITY: Ames Test: Negative

In vivo Mouse Micronucleus Test: Negative

MUTAGENECITY (with 3% of the epoxide): Ames Test: Negative

In vivo Mouse Micronucleus Test: Negative

CARCINOGEN LIST BY NTP, IARC OR OSHA:

No component of this product present at levels greater than 0.1% is identified as a carcinogen by NTP, IARC or OSHA.

---

#### 13.Ecological information.

This material is bio-degradable at aerobic conditions. 65% of SAS-40E was degraded for 45 days.

---

#### 14.Disposal Consideration.

If discarded in its purchased form, SAS-40E would not be considered as a hazardous waste either by listing or by characteristics under Federal Hazardous Waste Regulations, 40 C.F.R. 261. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste. 40 C.F.R. 261.20-24. Please be advised, however, that State and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult State and local regulations for proper disposal. Do not discharge into sewers, on the ground, or into any body of water.

---

#### 15.Transport information.

Not a Hazardous Material for DOT shipping.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

#### 16. Regulatory information.

##### CERCLA SUPERFUND

This product contains no Reportable Quantity (RQ) Substance that are currently listed under 40 C.F.R. § 302.4:

##### SARA HAZARD CATEGORY

This product has been reviewed according to EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An Immediate Health Hazard (for skin and/or eye contact).

##### SARA 313 INFORMATION

This product contains no substances that are currently subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 C.F.R. Part 372.

##### TOXIC SUBSTANCE CONTROL ACT (TSCA)

The ingredients of this product are all on the TSCA Inventory list.

This information relates to the specific material designated and may not be valid for such material used in condition with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness, and we do not accept liability for any loss or damage that may occur from the use of this information. Final determination of suitability of any material is the sole responsibility of the user. All material should be used with caution to guard against hazards. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

CANOLA OIL.  
CANOLA OIL.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

CANOLA OIL.

**1.Product identification.**

Product Name: OLEOCAL C-102 LM  
Synonym: Canola Oil, RBD, Low Moisture

**2.Composition/information on ingredients.**

	CAS Number	Weight %	ACGIH TLV	OSHA PEL
Rapeseed oil, low erucic	8002-13-9	99.9	Not est.	Not est.

**3.Hazard identification.**

Potential Health Effects

**INHALATION:** Negligible unless heated to produce vapors. Vapors or finely misted materials may irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.

**EYE CONTACT:** May cause irritation. Irrigate eye with water for at least 15 to 20 minutes. Seek medical attention if symptoms persist.

**SKIN CONTACT:** Prolonged or repeated contact is not likely to cause significant skin irritation. Material is sometimes encountered at elevated temperatures. Thermal burns are possible.

**INGESTION:** No hazards anticipated from ingestion incidental to industrial exposure.

**4.Firs aid measures**

**EYES:** Irrigate eyes with a heavy stream of water for at least 15 to 20 minutes.

**SKIN:** Wash exposed areas of the body with soap and water.

**INHALATION:** Remove from area of exposure, seek medical attention if symptoms persist.

**INGESTION:** Give one or two glasses of water to drink. If gastro-intestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person.)



## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

---

#### 5. Fire fighting measures.

FLASH POINT: > 200°C (>392°F)

FLASH POINT METHOD USED: Pensky Martin Closed Cup (PMCC)

FLAMMABILITY LIMITS: None known

EXTINGUISHING MEDIA: Dry chemical, foam, halon, CO<sub>2</sub>, water spray (fog). Water stream may splash burning liquid and spread fire.

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool drums exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Firefighters should use self-contained breathing apparatus to avoid exposure to smoke and vapor.

Exercise care when disposing of rags contaminated with the product. For additional information on oily rag fires, contact your local Fire Department or Lambent Customer Service.

---

#### 6. Accidental release measures.

SPILL CLEAN-UP PROCEDURES: Remove sources of ignition, contain spill to smallest area possible. Stop leak if possible. Pick up small spills with absorbent materials such as paper towels, "Oil Dry", sand or dirt. Recover large spills for salvage or disposal. Wash hard surfaces with safety solvent or detergent to remove remaining oil film. Greasy nature will result in a slippery surface.

---

#### 7. Handling and storage.

Store OLEOCAL C-102 LM in closed containers between 50°F (10°C) and 120°F (49°C). Keep away from oxidizing agents, excessive heat, and ignition sources. Store and use in well ventilated areas. Do not store or use near heat, spark, or flame; store out of sun. Do not puncture, drag, or slide this container. Drum is not a pressure vessel; never use pressure to empty.

---

#### 8. Exposure control/personal protection.

RESPIRATORY PROTECTION: If vapors or mists are generated, wear a NIOSH approved organic vapor/mist respirator.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

PROTECTIVE CLOTHING: Safety glasses, goggles, or face shield recommended to protect eyes from mists or splashing. PVC coated gloves recommended to prevent skin contact.

OTHER PROTECTIVE MEASURES: Employees must practice good personal hygiene, washing exposed areas of skin several times daily and laundering contaminated clothing before re-use.

---

### 9. Physical and chemical properties.

Boiling Point, 760mm Hg: > 200°C (392°F)

Specific Gravity, (H<sub>2</sub>O=1): 0.92

Evaporation Rate, (Butyl Acetate=1): < 1

Solubility in Water, % by Volume: Insoluble

Appearance and Odor: Light amber liquid with faint fatty odor

Vapor Pressure, mm Hg: < 1

Vapor Density, (Air=1): > 1

Volatiles, % by Volume: Negligible

---

### 10. Stability and reactivity.

GENERAL: This product is stable and hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion produces carbon monoxide, carbon dioxide along with thick smoke.

---

### 11. Disposal considerations.

Waste may be disposed of by a licensed waste disposal company. Contaminated absorbent material may be disposed of in an approved land fill. Follow local, state and federal disposal regulations.

---

### 12. Transport information.

UN HAZARD CLASS: Not Applicable

2 OLEOCAL C- 102 LM 10/2/02 3

DOT Transportation Data (49 CFR 172.101): Not Applicable

NMFC (National Motor Freight Classification):

PROPER SHIPPING NAME: Oils, other than petroleum, seed, Rape

IDENTIFICATION NUMBER: 145100

SHIPPING CLASSIFICATION: 65

International transportation

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

Harmonized Tariff, Schedule B: 1514.19.0000, Low erucic acid Rapeseed and fractions thereof, whether or not refined, but not chemically modified, other.

---

### 13.Regulatory information.

OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, thermal processing and decomposition fumes from this product may be hazardous as noted in Section 10.

TSCA STATUS: The components of this product are listed on TSCA.

CERCLA (Comprehensive Response Compensation, and Liability Act): Reportable quantity (RQ): Not established.

SARA TITLE III (Superfund Amendments and Reauthorization Act)

Section 312 Extremely Hazardous Substances: None

Section 311/312 Hazard Categories: Non-hazardous Under Section 311/312

Section 313 Toxic Chemicals: None

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California safe Drinking Water and Toxic Enforcement Act of 1986. The product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

---

### 14.Other information.

NFPA Codes: Health: 1 Fire: 1 Reactivity:  
0

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

TERMINAL AND RIVET.  
TERMINAL AND RIVET.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

TERMINAL OF COLD ROLLED.

**1.Producto identification.**

*Material* COLD ROLLED SHEET STEEL

*Synonyms* Cold Rolled Carbon Sheet Steel.

*Material Use* Manufacture of steel articles.

**2.Hazardous ingredients.**

<i>Hazardous Ingredients</i>	<i>Weight %</i>	<i>CAS No.</i>	<i>LD50</i>	<i>Exposure Limit (mg/m3)</i>
Steel:				
Iron (Fe)	~ 95	7439-89-6	30 g/kg (rat-oral)	5 (Fume)
Manganese (Mn)	≤ 1.65	7439-96-5	9 g/kg (rat-oral)	0.2
Chromium (Cr)	≤ 1.1	7440-47-3	Unknown	0.5
Nickel (Ni)	≤ 0.12	7440-02-0	Unknown	1.5

(Hazardous Ingredients – lists components which meet the reporting requirements of the Hazardous Products Act.)

Coating: (No Coating Applied)

Surface Treatments: (Constitutes less than 0.1% of total steel weight)

1. Oils ( PL-7105-A, Ferrocote 61-AUS, Ferrocote 61 MAL HCL-1G)

Hydrotreated naphthenic mineral oils or petroleum based lubricating oil containing petroleum sulphonates and anti-oxidants. Oil Coating weights range from 1.1 to 5.4 g/m2 per side.

2. Pre Temper solution (Qwerl 599) Water based solution of sodium nitrite and surfactants. Trace quantities remain after drying.

Note: Steel products do not contain and are not manufactured with any Class I or Class II ozone depleting substances.

**3.Physical data.**

Silver Grey Metallic Solid

Boiling Pt. (oC) - N.A.

Melting Pt. (oC) - 1530

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

Specific Gravity - 7.5 to 8

---

#### 4.Fire and explosion data.

Non – Flammable. Will not support combustion

---

#### 5.Reactivity data.

Stable: Contact with strong mineral acids will release flammable hydrogen gas

---

#### 6.Toxicological properties.

##### ROUTE OF ENTRY

None in its natural state. Operations such as welding, burning, grinding or machining may pose acute or chronic inhalation health effects. Skin or eye contact with coating oils may cause irritation with prolonged or repeated contact.

##### EFFECTS OF ACUTE EXPOSURE

None to sheet steel. Welding, burning, grinding or machining can generate metal particulate or elemental oxide fumes. Inhalation overexposure to manganese fume has been reported to cause "metal fume fever" characterized by fever and chills (i.e., flu-like symptoms). Such an overexposure is unlikely due to the small amount of manganese available. Fumes or mists of surface treatment oils may irritate the eyes and upper respiratory tract, and cause headache, dizziness and / or nausea if exposure is excessive.

##### EFFECTS OF CHRONIC EXPOSURE

None to sheet steel. Chronic inhalation overexposure to metal fume (i.e., iron oxide fume) may cause a benign pneumoconiosis (i.e., siderosis) with few or no symptoms. Repeated or prolonged contact to coating oils may cause skin irritation and dermatitis.

##### IRRITANCY

None

Carcinogenicity- Chromium and Nickel (See Additional Information)

Reproductive, Teratogenicity, Mutagenicity – no known effects

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

---

#### 7.Preventative measures.

Dependent upon the process being performed on the sheet steel material.  
Each operation must be addressed for suitable personal protective equipment required.  
General ventilation is normally adequate. Welding requires local exhaust ventilation or fume filter respirator, gloves and eyeware. Avoid prolonged or repeated skin contact, launder oil-contaminated clothing. Use oil impervious gloves if required to prevent contact. Avoid eye contact with oil contaminated hands.

---

#### 8.First aid measures.

Eyes - Flush with water

Skin - Wash contact areas with soap and water

Inhalation - For overexposure to metal fume, remove person to fresh air. Seek medical attention.

#### ADDITIONAL INFORMATION

IARC lists certain hexavalent chromium compounds under its Group 1 - "Confirmed Human Carcinogen". IARC lists certain nickel compounds under its Group 2A - "Suspected Human Carcinogen". Welding fume may also contain contaminants from fluxes and / or other welding consumables. Oil coatings should be removed prior to welding or grinding to minimize smoke generation.

---

#### 9.Other information.

Overexposure to dusts or fumes generated during welding or burning steels, particularly those containing chromium or nickel, may cause respiratory disease. High exposure to fumes during welding or burning of zinc coated products can cause reversible short-term flu-like symptoms. Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals. LIMIT inhalation of dusts or fumes generated during processing. LIMIT skin contact. Overexposure to metal fumes: Move to fresh air. Seek medical attention if necessary Skin contact: Wash with soap and water. Read the relevant Material Safety Data Sheet for more information

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

WIRES.  
WIRES.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

ZINC WIRE.

**1. Product information.**

Johnson Manufacturing Company      Emergency Telephone 1-(563)-289-5123  
114 Lost Grove Road                      CHEMTREC after hours 1-(800)-424-9300  
Princeton IA 52768                              Revised 1/1/2003

**2. Hazardous Ingredients/Identity information**

Hazardous Component	CAS #	OSHA TWA	ACGIH TWA	Other limits
+ Zinc (as oxide)	7440-66-6	5mg/M3	5mg/M3	NE 100%

Only those ingredients listed in this section have been determined to be hazardous as defined in 29CFR 1910.1200.

An ingredient marked with an asterisk(\*) is also listed in 29CFR 1910.1200(D) #4 as a known or suspected cancer hazard.

+ denotes a chemical regulated as toxic by the Environmental Protection Agency (EPA) as outlined in 40CFR Part 372 (section 313)

**3. Physical/Chemical Characteristics.**

Boiling Point: 1664F	Specific Gravity: 7.1
Vapor Pressure (mm Hg): NE	Melting Point: 788 F
Vapor Density: NE	Evaporation Rate
Solubility in water: insoluble	(butyl acetate=1): < 1
Appearance and odor: silver grey solid, odorless	

**4. Fire and Explosion Hazard Data**

Flash Point: non flammable      Flammable limits lcl: NA uel: NA  
Extinguishing media: Dry chemical  
Special fire fighting procedures: use self-contained breathing apparatus  
Unusual Fire and Explosion Hazards: May release zinc and zinc oxide fumes.

---

## 5.Reactivity Data

Stability : STABLE    Conditions to avoid : none  
Incompatibility (materials to avoid): oxidizing materials, acids & bases  
Hazardous Decomposition or By products: Zinc & zinc oxide fumes.  
Hazardous Polymerization: WILL NOT OCCUR    Conditions to avoid: none

---

## 6.Health Hazard Data

Routes of entry: Inhalation? yes    Skin? no    Ingestion? yes

Health Hazards (acute and chronic): Contact with material, dust or fumes may cause skin, eye, and respiratory tract irritation. Ingestion of large quantities may cause digestive tract irritation. Gross or repeated inhalation may result in "metal fume fever", symptoms of which may not manifest for several hours after exposure. Chronic exposure via inhalation may result in benign pnuemoconiosis, kidney effects. Chronic ingestion may result in kidney effects. Studies show that potential health risks vary by individual.

Always minimize exposure as a precaution.

Carcinogenicity: not determined    NTP? no    IARC Monographs? no

Signs and symptoms of exposure: Inhalation-Nose & throat irritation, headache, dizziness, difficulty breathing, coughing. Ingestion-nausea, vomiting, cramps. Skin-redness, burning, rash, dryness. Eye-redness, burning, tearing, blurred vision.

Medical Conditions Aggravated by exposure: Skin, kidney and respiratory conditions.

Emergency first aid procedures:

Skin: Flush with water immediately - Seek medical attention if necessary

Eyes: Flush with water for 15 minutes - Seek medical attention

Ingestion: Drink large amount of water, Induce vomiting if practical-Seek medical attention.

Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. Support respiration if required.

Seek medical attention if necessary.

---

## 7.Precautions for Safe Handling and Use

Steps to be taken if material is released or spilled: Vacuum, absorb or flush in to a chemical sewer. Do not use any method which will generate dust.

Waste Disposal Method: dispose of in accordance with all local state and federal regulations

Other Precautions: Avoid skin & eye contact, inhalation & ingestion of fumes and material.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

Wash contaminated clothing before reuse. Keep away from children. Do not reuse container.

---

## 8. Control Measures

Respiratory Protection (type): Dust mask for particulates, metal fume type respirator for fumes.

Ventilation Local exhaust preferred Special: none

Mechanical: OK Other: NE

Protective gloves: impervious Eye protection: glasses or goggles

Other Protective Clothing or Equipment: as required to avoid contact.

Work/Hygienic Practices: Wash after use. Follow good industrial hygienic practices.

---

## 9. Additional Information

DOT Hazard Classification: Non-hazardous

NFPA Classification (NFPA 325M, 8<sup>th</sup> edition)(Health, Flammability, Reactivity): 1-0-0

Other: NE

The information and recommendations contained within this publication have been compiled from sources believed to be reliable and to represent the best information available to NGM at the time of issue. No warranty, guarantee, or representation is made by NGM nor does NGM assume any responsibility in connection there within; nor can it be assumed that all acceptable safety measures or other safety measures may not be required under particular or exceptional conditions or circumstances.

NE = not established NA = not applicable

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

COPPER WIRE

**1. Product Identification**

Synonyms: Copper  
Molecular Weight: 63.546  
Chemical Formula: Cu

**2. Composition/Information on Ingredients**

Ingredient	CAS No	Percent	Hazardous
Copper	7440-50-8	90 - 100%	Yes

**3. Hazards Identification**

**Emergency Overview**

**WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS THE LIVER AND KIDNEYS. CHRONIC EXPOSURE MAY CAUSE TISSUE DAMAGE.**

Health Rating: 3 - Severe (Life)

Flammability Rating: 1 - Slight

Reactivity Rating: 2 - Moderate

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)

**Potential Health Effects**

**Inhalation:**

Inhalation of dusts and fumes of metallic copper causes irritation of the upper respiratory tract, congestion of nasal mucous membranes, ulceration and perforation of the nasal septum, and pharyngeal congestion. Inhalation of copper fumes may give rise to metal fume fever (high temperature, metallic taste, nausea, coughing, general weakness, muscle aches, and exhaustion).

**Ingestion:**

Copper ingestion causes nausea, vomiting, abdominal pain, metallic taste, and

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

diarrhea. Ingestion of large doses may cause stomach and intestine ulceration, jaundice, and kidney and liver damage.

**Skin Contact:**

Causes irritation to skin. Symptoms include redness, itching, and pain. Exposure to copper dust may cause a greenish-black skin discoloration.

**Eye Contact:**

Small copper particles in the eyes may cause irritation, discoloration, and damage.

**Chronic Exposure:**

Prolonged or repeated exposure to copper can discolor skin and hair and irritate the skin; may cause mild dermatitis, runny nose, and irritation of the mucous membranes. Repeated ingestion may damage the liver and kidneys. Repeated inhalation can cause chronic respiratory disease.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or impaired liver, kidney, or pulmonary function or pre-existing Wilson's disease may be more susceptible to the effects of this material.

---

#### 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

#### 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard since the bulk solid does not burn, but very finely divided particles (ultra-fine powder) may burn in air.

**Explosion:**

Not considered to be an explosion hazard. Reactions with incompatibles may pose an explosion hazard. Liquid copper explodes on contact with water. High concentrations of finely divided copper particles in the air may present an explosion hazard.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

---

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

---

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid exposure to air and moisture. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

Copper Dust and Mists, as Cu:

- OSHA Permissible Exposure Limit (PEL) -

1 mg/m<sup>3</sup> (TWA)

- ACGIH Threshold Limit Value (TLV) -

1 mg/m<sup>3</sup> (TWA)

Copper Fume:

- OSHA Permissible Exposure Limit (PEL) -

0.1 mg/m<sup>3</sup> (TWA)

- ACGIH Threshold Limit Value (TLV) -

0.2 mg/m<sup>3</sup> (TWA)

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece particulate respirator (NIOSH type N100 filters) may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

**Appearance:**

Reddish, metallic solid.

**Odor:**

Odorless.

**Solubility:**

Insoluble in water.

**Density:**

8.94

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

2595C (4703F)

**Melting Point:**

1083C (1981F)

**Vapor Density (Air=1):**

Not applicable.

**Vapor Pressure (mm Hg):**

1 @ 1628C (2962F)

**Evaporation Rate (BuAc=1):**

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage. Copper becomes dull when exposed to air; on exposure to moist air it gradually converts to the carbonate. On long standing, a white, highly explosive peroxide deposit may form.

**Hazardous Decomposition Products:**

No information found.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Copper is incompatible with oxidizers, alkalis, acetylene, chlorine plus oxygen difluoride, phosphorus, nitric acid, potassium peroxide, 1-bromo-2-propyne, sulfur plus chlorates. Reacts violently with ammonium nitrate, bromates, iodates, chlorates, ethylene oxide, hydrozoic acid, potassium oxide, dimethyl sulfoxide plus trichloroacetic acid, hydrogen peroxide, sodium peroxide, sodium azide, sulfuric acid, hydrogen sulfide plus air, and lead azide. A potentially explosive reaction occurs with actylenic compounds. Copper ignites on contact with chlorine, fluorine (above 121C), chlorine trifluoride, and hydrazinum nitrate (above 70C). An incandescent reaction occurs with potassium dioxide.

**Conditions to Avoid:**

Incompatibles and prolonged exposure to air and moisture.

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen and a reproductive effector.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Copper (7440-50-8)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

**13. Disposal Considerations**

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

**14. Transport Information**

Not regulated.

**15. Regulatory Information**

```

-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
-----
Copper (7440-50-8)                             Yes   Yes   No     Yes
  
```

```

-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  DSL   NDSL   Phil.
-----
Copper (7440-50-8)                             Yes   Yes   No     Yes
  
```

```

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ   TPQ   List  Chemical Catg.
-----
Copper (7440-50-8)                             No   No    Yes    No
  
```

```

-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     -RCRA-  -TSCA-
CERCLA  261.33  8 (d)
-----
Copper (7440-50-8)                             5000   No     No
  
```

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No  
 Reactivity: No (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: **2** Flammability: **0** Reactivity: **0**

**Label Hazard Warning:**

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS THE LIVER AND KIDNEYS. CHRONIC EXPOSURE MAY CAUSE TISSUE DAMAGE.

**Label Precautions:**

Avoid contact with eyes, skin and clothing.  
Wash thoroughly after handling.  
Avoid breathing dust or vapors.  
Keep container closed.  
Use only with adequate ventilation.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 3.

**Disclaimer:**

\*\*\*\*\*  
\*\*\*\*\*

NGM provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. NGM MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

RESINS.  
RESINS.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

*LOCTITE 3106 UV RESIN.*

**1. Product identification.**

Product name: 3106 UV Curing General Purpose Adhesive

Product type: Ultraviolet adhesive

**2. Composition/information on ingredients.**

<u>Hazardous components</u>	<u>%</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER</u>
Urethane Polymer Proprietary	30-60	None	None	None
Acrylate monomer Proprietary	30-60	None	None	None
Modified acrylamide 2680-03-7	10-30	None	None	0.1 mg/m <sup>3</sup> TWA (skin) 0.025 ppm TWA (skin)
Photoinitiator 24650-42-8	1-5	None	None	None
Substituted silane Proprietary	1-5	None	None	None
Silica, amorphous, fumed, crystalline-free 112945-52-5	1-5	6 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> TWA	3 mg/m <sup>3</sup> TWA respirable dust
Photoinitiator Proprietary	1-5	None	None	None
Hydroxyethyl acrylate 818-61-1	0.1-1	None	None	None

**3. Hazard identification.**

EMERGENCY OVERVIEW.

Physical state:	liquid	health:	2*
Color:	Transparent to slightly hazy	flammability:	2
Odor:	mild	Physical hazard:	1
		Personal Protection:	See section 8.

Product name: 3106 UV Curing General Purpose Adhesive

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

WARNING: COMBUSTIBLE LIQUID HARMFUL IF SWALLOWED, ABSORBED THROUGH SKIN OR INHALED. DO NOT SPRAY. DO NOT HEAT. MAY CAUSE ALLERGIC SKIN REACTION. CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION

Relevant routes of exposure: Skin, Inhalation, Eyes

#### Potential Health Effects

Inhalation: Modified acrylamide is harmful if inhaled. Vapors and mists will irritate the respiratory tract and nasal

passages. Headache. Nausea. DO NOT heat or spray as this increases the inhalation hazard.

Skin contact: Modified acrylamide may be absorbed through skin in harmful amounts. Toxic. May cause allergic skin reaction. Irritating to skin.

Eye contact: Contact with eyes will cause irritation.

Ingestion: Modified acrylamide is harmful if swallowed. Toxic.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

---

#### 4. First aid measures.

Inhalation: Remove to fresh air. If symptoms develop and persist, get immediate medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and shoes. Wash clothing before reuse. Get immediate medical attention if symptoms occur.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

Ingestion: Do not induce vomiting. Keep individual calm. Get medical attention immediately.

---

#### 5. Fire fighting measures.

<b>Flash point:</b>	77.8°C (172°F) Pensky Martens closed cup
<b>Autoignition temperature:</b>	Not available
<b>Flammable/Explosive limits-lower %:</b>	Not available
<b>Flammable/Explosive limits-upper %:</b>	Not available
<b>Extinguishing media:</b>	Foam, dry chemical or carbon dioxide.
<b>Special fire fighting procedures:</b>	None
<b>Unusual fire or explosion hazards:</b>	None
<b>Hazardous combustion products:</b>	Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Irritating organic vapors. Toxic fumes.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

#### 6. Accidental releases measures.

**Environmental precautions:** Remove sources of ignition. Prevent product from entering drains or open waters.

**Clean-up methods:** Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up. Soak up with inert absorbent. Store in a partly filled, closed container until disposal.

#### 7. Handling and storage.

**Handling:** Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. DO NOT heat or spray. Use only with adequate ventilation. Refer to Section 8. Use only in area provided with appropriate exhaust ventilation.

**Storage:** For safe storage, store at or below 26°C (80°F). Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

**Incompatible products:** Refer to Section 10.

#### 8. Exposure control/personal protection.

**Engineering controls:** Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

**Respiratory protection:** Use NIOSH approved respirator if there is potential to exceed exposure limit(s). If this material is handled at elevated temperatures or under mist forming conditions, without engineering controls, a NIOSH approved respirator must be used.

**Skin protection:** Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene gloves.

**Eye/face protection:** Safety goggles or safety glasses with side shields. In a splash hazard environment, chemical goggles should be used in combination with a full face shield.

#### 9. Physical and chemical properties.

<b>Physical state:</b>	Liquid
<b>Color:</b>	Transparent to Slightly Hazy
<b>Odor:</b>	Mild
<b>Vapor pressure:</b>	Less than 5 mm Hg at 20°C (68°F)

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

<b>pH:</b>	Not applicable
<b>Boiling point/range:</b>	Greater than 93°C (200°F)
<b>Melting point/range:</b>	Not available
<b>Specific gravity:</b>	1.078
<b>Vapor density:</b>	Greater than 1
<b>Evaporation rate:</b>	Not available
<b>Solubility in water:</b>	Slight
<b>Partition coefficient (n-octanol/water):</b>	Not available
<b>VOC content:</b>	ASTM D5403 Process volatiles 2.16 %, 23.28 grams/liter; Potential volatiles 1.05 %, 11.32 grams/liter; Total volatiles 3.21 %, 34.60 grams/liter.

### 10. Stability and reactivity.

**Stability:** Stable under normal conditions of storage and use.

**Hazardous polymerization:** May occur.

**Hazardous decomposition products:** Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Irritating organic vapors.

**Incompatibility:** Strong oxidizers. Strong acids. Strong bases. Amines. Peroxides. Free radical initiators.

### 11. Toxicological information.

**Product toxicity data:**

- Modified acrylamide: LD50 (oral, rat) 316 mg/kg
- LD50 (dermal, rabbit) 518 mg/kg
- LC50 (vapor, 1 hour, rat) greater than 776 ppm

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Urethane Polymer Proprietary	No	No	No
Acrylate monomer Proprietary	No	No	No
Modified acrylamide 2680-03-7	No	No	No
Photoinitiator 24650-42-8	No	No	No
Substituted silane Proprietary	No	No	No
Silica, amorphous, fumed, crystalline-free 112945-52-5	No	No	No
Photoinitiator Proprietary	No	No	No
Hydroxyethyl acrylate 818-61-1	No	No	No

#### Literature Referenced Target Organ & Other Health Effects

Hazardous components	Health Effects/Target Organs
Urethane Polymer Proprietary	No Records
Acrylate monomer Proprietary	Allergen, Irritant
Modified acrylamide 2680-03-7	Less weight gain and food intake., Mutagen, Kidney, Irritant, Eyes
Photoinitiator 24650-42-0	No Target Organs
Substituted silane Proprietary	Allergen, Irritant
Silica, amorphous, fumed, crystalline-free 112945-52-5	Nuisance dust
Photoinitiator Proprietary	No data
Hydroxyethyl acrylate 818-61-1	Allergen, Central nervous system, Heart, Irritant, Kidney, Liver, Lung, Some evidence of carcinogenicity, Spleen

## 12. Ecological information.

Not available

## 13. Disposal considerations.

**Information provided is for unused product only.**

**Recommended method of disposal:** Dispose of according to Federal, State and local governmental regulations.

**EPA hazardous waste number:** Not a RCRA hazardous waste.



**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

---

**14. Transport information.**

The shipping classifications in this section are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

**U.S. Department of Transportation Ground (49 CFR):**

<b>Proper shipping name:</b>	Unrestricted
<b>Hazard class or division:</b>	None
<b>Identification number:</b>	None
<b>Packing group:</b>	None

**International Air Transportation (ICAO/IATA):**

<b>Proper shipping name:</b>	Unrestricted
<b>Hazard class or division:</b>	None
<b>Identification number:</b>	None
<b>Packing group:</b>	None

**Water Transportation (IMO/IMDG):**

<b>Proper shipping name:</b>	Unrestricted
<b>Hazard class or division:</b>	None
<b>Identification number:</b>	None
<b>Packing group:</b>	None
<b>Marine pollutant:</b>	None

**15. Regulatory information.**

**United States Regulatory Information**

<b>TSCA 8 (b) Inventory Status:</b>	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
<b>TSCA 12 (b) Export Notification:</b>	4-Methoxyphenol (150-76-5).
<b>CERCLA/SARA Section 302 EHS:</b>	None above reporting de minimus.
<b>CERCLA/SARA Section 311/312:</b>	Immediate Health Hazard, Delayed Health Hazard, Fire
<b>CERCLA/SARA 313:</b>	None.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

**California Proposition 65:** No California Proposition 65 listed chemicals are known to be present.

#### Canada Regulatory Information

**CEPA DSL/NDSL Status:** Contains one or more components listed on the Non-Domestic Substances list.

**WHMIS hazard class:** B.3, D.1.B, D.2.B

---

### 16. Other information.

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, NGM does not assume responsibility for any results obtained by persons over whose methods NGM has no control. It is the user's responsibility to determine the suitability of NGM's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of NGM's products. In light of the foregoing, NGM specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of NGM's products. NGM further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

**MATERIAL SAFETY DATA SHEET**  
**AC MOTOR RUN CAPACITORS (Wet Metal case)**

*EPOXY RESIN.*

**1. Product information.**

**Chemical Family:** EPOXY RESIN  
**Manufacturers Code Name:** RBC-4501  
**Chemical Name:** DIGLYCIDYLETHER OF BISPHENOL-A

**2. Hazardous ingredients.**

Ingredient	% (optional)	CAS Number	OSHA PEL mg/m <sup>3</sup>	ACGIH TLV-TWA mg/m <sup>3</sup>
DEGBA EPOXY RESIN	30-40	25085-99-8	NOT ESTABLISHED	
POLYGLYCOL EPOXY	5-15	26142-30-3	NOT ESTABLISHED	
ALUMINUM TRIHYDROXIDE	50-60	14762-49-3	NOT ESTABLISHED	

**3. Physical data.**

Boiling Point (DEG F):	N/A	Specific Gravity (Water=1):	1.6
Vapor Pressure (mm Hg):	N/A	Percent Volatile by Volume:	0.0
Vapor Density (Air=1):	N/A	Evaporation Rate Vs Ether:	N/A
Solubility in Water:	NO		
Appearance and Order:	BLACK LIQUID; SWEET CHARACTERISTIC ODOR		

**4. Fire and explosion hazard data.**

**Flash Point (Method Used):** 485 Deg F (PMCC)      **Flammable Limits:** NOT DETERMINED

**Extinguishing Media:** USE SPRAY, DRY CHEMICAL, FOAM OR CARBON DIOXIDE.

**Special Fire Fighting Procedures:** TREAT AS A CLASS B FIRE.

**Unusual Fire and Explosion Hazards:** NONE

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

#### 5. Health hazard data.

##### Effects of Overexposure:

**INGESTION:** LOW ACUTE ORAL TOXICITY; LD50 (RAT) GREATER THAN 2000 MG/KG

**EYE CONTACT:** MINOR TRANSIENT IRRITATION. NO CORNEAL INJURY LIKELY.

**SKIN CONTACT:** ONLY MINOR IRRITATION. MAY BE A SKIN SENSITIZER.

**SKIN ABSORPTION:** NOT LIKELY TO BE A ABSORBED THROUGH SKIN IN TOXIC AMOUNTS.

**INHALATION:** NOT CONSIDERED A PROBLEM UNLESS HEATED TO HIGH TEMPERATURE.

##### Emergency First Aid Procedure:

**SKIN CONTACT:** WASH WITH SOAP AND WATER; WASH CLOTHES BEFORE REUSE.

**EYE CONTACT:** IRRIGATE WITH WATER FOR FIVE MINUTES; CONSULT PHYSICIAN.

**INHALATION:** REMOVE TO FRESH AIR IF EFFECTS OCCUR; CONSULT PHYSICIAN.

**INGESTION:** INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

#### 6. Reactivity data.

**Stability:** STABLE

##### Incompatibility (Materials to Avoid):

STRONG ACIDS, AMINES, MERCAPTONS, BASES (IN UNCONTROLLED AMOUNTS)

##### Hazardous Decomposition Products:

THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE AND/OR CARBON DIOXIDE.

**Hazardous Polymerization:** WILL NOT OCCUR.

**Conditions to Avoid:** STRONG ACIDS, AMINES, MERCAPTONS, BASES (IN UNCONTROLLABLE AMOUNTS)

#### 7. Spill or leak procedure.

**Steps to be taken if Release or Spilled:** ABSORB WITH INERT MATERIAL (SAND, VERMICULITE, ETC.), SWEEP OR SCOOP UP AND PUT IN DISPOSAL CONTAINER. FLUSH ARE IMMEDIATELY WITH PLENTY OF WATER; PREVENT WASHINGS FROM ENTERING WATERWAYS.

**Waste Disposal Method:** INCINERATE IN FURNACE OR BURY IN LANDFILL IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

## MATERIAL SAFETY DATA SHEET

### AC MOTOR RUN CAPACITORS (Wet Metal case)

---

---

#### 8.Special protection information.

**Respiratory Protection:** NIOSH APPROVED ORGANIC VAPOR RESPIRATORS ARE ONLY REQUIRED WHEN VENTILATION IS INADEQUATE. NIOSH APPROVED AIR-LINE RESPIRATORS WITH AUXILIARY ESCAPE AIR TANKS OR SELF-CONTAINED BREATHING APPARATUS SHOULD BE USE DIN CONFINED SPACES.

**Ventilation:** LOCAL MECHANICAL EXHAUST.

**Protective Gloves:** IMPERVIOUS GLOVES.

**Eye Protection:** SAFETY GLASSES WITH SIDE SHIELDS.

**Other Protective Equipment:** SAFETY SHOWER AND EYE BATH SHOULD BE PROVIDED. USE COVERALLS OR APRON TO PROTECT AGAINST SKIN AND CLOTHING CONTAMINATION.

---

#### 9.Special precautions.

**Precautions to be Taken in Storage and Handling:** PRACTICE REASONABLE CARE AND CLEANLINESS.

**Other Precautions:** AVOID GROSS CONTAMINATION OF SKIN. WASH SKIN WITH PLENTY OF SOAP AND WATER. USE WITH ADEQUATE VENTILATION. AVOID BREATHING VAPORS.