ENERGETIC MATERIALS & PRODUCTS, INC
Safety Data Sheet (SDS)

SDS# 011
Revision Date: March 2, 2017

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Thermite, TEC Torch® Composition

Pyrotechnic as a component in the TEC Torch® cartridges. The material is solely designed to be used when assembled in the cartridge and is not for resale or distribution.

Manufactured by Energetic Materials & Products, Inc.. 1413 Brandi Ln, Round Rock, TX (512) 380-1992

ChemTel Emergency Phone Number: 800-255-3924

SECTION 2. HAZARD IDENTIFICATION

Classification of Substance:

Material is water sensitive and may emit flammable gases when in contact with water. (Category 2)
Suspected Carcinogen (Category 2)
Eye Irritation (Category 2)
Target Organ Systemic Toxicity, Single Exposure (Category 3)

GHS Label Elements:

Signal Word **DANGER WARNING**

Hazard Statement(s):

H261	In contact with water releases flammable gas
H351	Suspected of causing cancer via inhalation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary Statement(s):

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P280	Wear protective gloves/protective clothing/eye protection/face protection
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking
P232	Protect from moisture.
P402/404	Store in a dry place. Store in a closed container.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash thoroughly after handling
P271	Use only in a well-ventilated area
P501	Dispose of contents/container in accordance with local/regional/national/international regulations
P370/378	In case of fire: Use DRY agents only such as melting flux, dry sand, dry talc, MET-L-X powder, Purple-K powder, G1, or other suitable extinguishing agents by gently covering burning powder to smother fire.
P335/P334	Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages

SECTION 3. COMPOSITION, INFORMATION ON INGREDIENTS

Component Name	CAS #	Proportion
Aluminum	7429-90-5	Proprietary
Magnesium	7439-95-4	Proprietary
Cupric Oxide	1317-38-0	Proprietary
Molybdenum Oxide	1313-27-5	Proprietary

SECTION 4. FIRST AID MEASURES

ROUTES OF ENTRY	EMERGENCY AND FIRST AID PROCEDURES
INHALATION:	Remove affected person(s) to fresh air. If symptoms persist seek medical attention.
SKIN:	Remove contaminated clothing and wash with soap and water to remove particles.
EYES:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
INGESTION:	Give large amounts of water. Seek medical attention.
MEDICAL TREATMENT FOR BURNS:	Affected areas should be classified as thermal and NOT chemical burns. Affected areas are likely to be heavily contaminated with metal and metal oxide particulate. Seek medical attention for treatment.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazard:

DO NOT FIGHT FIRES! Once material is ignited, the chemical reaction cannot be halted. Evacuate the area, protect surroundings, and allow fire to burn itself out.

Material is highly flammable, igniting readily in the presence of spark or flame.

Material can be explosive if suspended in air and ignited.

Water will act as an accelerant to burning powder.

Extinguishing Media:

If possible, smother burning powder by gently covering with DRY agents only such as melting flux, dry sand, dry talc, MET-L-X powder, Purple-K powder, G1 or other suitable extinguishing agents. Powder can easily be suspended in air and care must be exercised to avoid spreading burning powder.

DO NOT USE WATER! DO NOT use foam, halogenated extinguishers or carbon dioxide.

Note: The use of wet extinguishing agents will accelerate the powder fire and may cause an explosion. Magnesium alloy component reacts with water to create hydrogen gas and heat. Powder must be kept dry.

Specific Hazards:

Material burns vigorously once ignited. Reaction can exceed 5000°F (2760°C).

Material is sensitive to shock, impact, friction, electrostatic discharge, high pressure, or temperature. Material will produce extreme heat, jets of flame, and pressure if exposed to above conditions. Confinement may increase the severity of explosion effects.

Auto ignition Temperature: 750°F (400°C) determined by DSC. Powder in air will sometimes auto ignite at temperatures significantly less than its melting point of 830°F (440°C). The presence of moisture will greatly increase the risk of auto ignition.

Special Protective Equipment and Precautions for Firefighters:

Wear Fire Fighting Glasses when fighting fires. Burning powder produces a very bright flame. Apply extinguishing agents carefully to avoid disturbing or spreading the powder. Monitor carefully for flare-ups and smother these as necessary. Us self contained breathing apparatus (SCBA) or approach fire from upwind due to dense smoke.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Small Spill:

Isolate area from ignition sources. Use grounded brushes or paper towels, textiles, or sponges to wipe up contaminated area. If using paper towels, textiles, or sponges, wet with desensitizing agent (Section 9). Dispose of reside and contaminated clean up items as hazardous waste.

Large Spill:

Isolate area from ignition sources. Use sufficient desensitizing agent. Collect the material as in small spill section.

Environmental Precautions:

Prevent entry into sewers and public water ways. Notify authorities if material enters sewers or public waters.

SECTION 7. HANDLING AND STORAGE

Handling and use should be restricted to trained personnel only. Keep container closed when not in use. When applicable, keep material wetted with desensitizing agent. The powder must be kept dry and away from sources of heat or ignition. Exposure to air and humidity should be avoided. In dedicated areas where significant quantities of powder are stored, there should be no automatic sprinklers.

NO SMOKING in areas where powder is present.

Accumulations of powder must be prevented. Work areas must be kept clean at all times!

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT		Safety glasses or googles and flame retardant gloves, long sleeve and long pant flame retardant clothing. Face shield is recommended.			
GLOVES	Nomex or other fire retardant material with long cuff	EYE PROTECTION	Safety glasses. In situations of significant clouds of particles are likely, unventilated chemical splash googles.	PROTECTIVE CLOTHING	Long sleeve and long pants flame retardant clothing.

VENTILIATION	Extreme care in handling or a ventilation system (explosion proof) is recommended to prevent airborne dust concentrations.
RESPIRATORY PROTECTION	Use general dilution ventilation and/or local exhaust ventilation to control airborne exposure. If ventilation is not adequate, use respiratory protection equipment (respirator mask with particulate filter rated by NIOSH as 99.97% efficient.
OTHER	Safety eyebath nearby.
WORK/HYGIENE PRACTICES	Use process controls to minimize dust generation. Minimize body contact.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Fine metal and metaloxide powder
Odor: Metallic
Specific Gravity (water =1): 3-6
Bulk Density: Varies
Boiling Point: Not applicable
Freezing Point: Not applicable
Viscosity: Not applicable
Ph @ 25°C: Not applicable
Vapor Density: Not applicable
Evaporation Rate: Negligible
Vapor Pressure: Negligible
% Volitile: Negligible
Particle Size: > 1 micron
Decomposition Temp: Not applicable
Desensitizing Agent: Isopropyl alcohol, acetone, or hexanes

SECTION 10. STABILITY & REACTIVITY DATA

Chemical Stability:

This product is stable if handled properly. Avoid conditions listed below. Keep dry, excess moisture will effect sensitivity and stability.

Conditions to Avoid:

Shock, impact, friction, electrostatic discharge, high pressure, high temperature, open flame, and physical or chemical contamination. High humidity.

Incompatible Materials:

Acids, acid chlorides, halogens, oxidizing agents, moist air, water. Contact with triflouride or ethylene oxide will produce irritating and toxic fumes.

Hazardous Decomposition or Byproducts:

Decomposition will not occur if handled and stored properly. In case of fire, oxides of carbon and metals, hydrocarbon, fumes, and smoke may be produced.

Hazardous Polymerization:

Will not occur.

Desensitizing Agent:

Isopropyl alcohol, acetone, or hexanes can be used to reduce the heat, shock, pressure, and electrostatic discharge sensitivity of the powder.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute effects:	NA	ORL-RAT LD_{50}:	NA
Chronic effects	NA	IHL-RAT LC_{50}:	NA
Target Organs:	NA	SKN-RBT LD_{50}:	NA

NA = Not available, not all health aspects of this substance or its products have been fully investigated.

SECTION 12. ECOLOGICAL INFORMATION

Prevent from entering drains, sewers, and surface water.

SECTION 13. DISPOSAL CONSIDERATIONS

Please review all federal, state and local regulations that may apply before proceeding. The main considerations in the disposal of powder and residue are contacts with water or moisture, which can release hydrogen gas.

SECTION 14. TRANSPORT INFORMATION

UN3178 Flammable Solids, Inorganic, n.o.s., (Thermite), 4.1, PGII

SECTION 15. REGULATORY INFORMATION

None

SECTION 16. OTHER INFORMATION

Original MSDS;	9/8/2014
Revision; SDS format	3/2/2017