

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name: M3A1 p/n 1050 Use: Pull wire ignitor
 PWL p/n 2020
 Manufacturer: Martin & Shaft LLC Phone Number: US 303-567-4801
 28320 St. Michaels Road Intl (11) 1-303-567-4801
 Easton, MD 21601 EMERGENCY CHEMTREC 1-800-424-9300

2. Hazards Identification

Emergency Overview



GHS Classifications	
Explosive	Division 1.4
Acute Toxicity	Category 5
Skin Corrosion / Irritation	Product- Category 1A Contents - Category 2
Serious Eye Damage / Irritation	Product-Category 1 Contents - Category 2B
Aquatic Environment – Chronic	Contents - Category III

Hazard Statements:

Fire or projection hazard
 Causes severe skin burns and eye damage (product when burning)
 Causes skin and eye irritation (contents)
 Harmful if swallowed or inhaled

Precautionary Statements:

Keep out of reach of children.
 Keep away from heat/sparks/open flames/hot surfaces. – no smoking.
 Keep/Store away from combustible materials.
 Protect from moisture.
 Use only non-sparking tools
 Avoid breathing dust/smoke
 Use only outdoors or in a well-ventilated area.
 Avoid release to the environment.(contents)
 Use personal protective equipment as required.
 In case of fire: use water deluge. Do not use dry powder or foam extinguishers!

NFPA Rating

Flammability 2
 Health 2
 Reactivity 1

HMIS Rating

Flammability 1
 Health 3
 Physical Hazard 1

3. Composition / Information on Ingredients

Component	CAS #	EINCS #	%age
Potassium Chlorate	3811-04-9	231-100-4	<50%
Ethyl Alcohol	64-17-5	200-578-6	<50%
Acetone	67-64-1	200-662-2	<50%
Red Phosphorus	7723-14-0	231-768-7	<20%
Charcoal	68-647-869	231-153-3	<20%
Cellulose Nitrate	9004-70-0	none	<20%
Dextrin	9004-53-9	232-675-4	<20%
Orange Flake Shellac	9000-59-3	232-549-9	<20%

4. First Aid Measures

Inhalation If fumes from ignition or contents are inhaled, remove to fresh air. If not breathing, give artificial respiration and get medical aid.

Skin For burns, cool with water and bandage appropriately. If contents are contacted, wash with area with soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid if burned or irritation occurs.

Eyes If burned, cover eye and get medical help immediately. If contents get into eye, flush with plenty of water for at least 15 minutes, occasionally lifting the up and lower lids. Remove contact lenses if easily possible Get medical aid immediately.

Ingestion Get medical aid immediately.

5. Firefighting Measures

Extinguishing Media Water

Unsuitable Extinguishing Media Foam and dry chemical extinguishers and suffocation are ineffective

Protective Equipment and Precautions for Firefighters 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. Prevent further propagation of fire by spraying unburnt nearby product with water. Combat fire from a sheltered position.

Specific Hazards Arising from the Chemical Flame and sparks are ejected out the open end of the ignitor when it functions. Do not point ignitor at any part of the body or flammable material. Only use outdoors – smoke is harmful.

Flashpoint Not Applicable **Flammability Limits** Not Applicable **Ignition Temperature** >167F

6. Accidental Release Measures

Personal Precautions Do not breathe contents and avoid contact with skin and eyes. Wear flame retardant clothing with long sleeves, dust mask, rubber or nitrile gloves, safety goggles, safety shoes. Avoid friction on the released contents. Keep away from ignition sources.

Environmental Precautions Prevent dispersion of contents on soil and in water. Prevent contents from spreading or entering into drains, ditches, groundwater or rivers by using appropriate barriers.

Methods for Containment and Clean-up

Use caution when cleaning up spilled product contents. Remove heat, flames, sparks and other sources of ignition. Use non-sparking tools and equipment. Prevent buildup of electrostatic charges by grounding. Clean spills in a manner that does not disperse dust into the air. Do not absorb in sawdust or other combustible absorbents. Pick up spill for recovery or disposal and place in an approved container. Wash away remainder with plenty of water. Collect wash water for approved disposal.

7. Handling and Storage

Handling Wear leather gloves, goggles or face shield and leather apron when operating ignitor. Hold and point ignitor away from body when igniting. Avoid contact with clothing and other combustible materials. Use with adequate ventilation.

Storage Store in a dry place away from direct sunlight, heat and incompatible materials. Store away from food and beverages. Store away from flammable materials, sources of heat, flame and sparks. Store at ambient temperature. NOTE: this product may be regulated as an explosive material by the U.S. Bureau of Alcohol, Tobacco & Firearms. If so, all storage must be in full compliance with the ATF regulations, found in Title 27, Part 55, Subpart K of the Code of Federal Regulations.

8. Exposure Controls / Personal Protection

Exposure Limits	OSHA PEL	ACGIH TLV
Potassium Chlorate	No Airborne Exposure Limits established	No Airborne Exposure Limits established
Ethyl Alcohol	1000 ppm (1900 mg/cu m).	8 hr Time Weighted Avg (TWA): 1000 ppm.
Acetone	1000 ppm TWA	500 ppm TWA 750 ppm STEL
Red Phosphorus	nuisance dust 15 mg/m ³ .	nuisance dust 15 mg/m ³ .
Charcoal	nuisance dust 15 mg/m ³ .	nuisance dust 15 mg/m ³ .
Cellulose Nitrate	not stated	not stated
Dextrin	15 mg/m ³ total dust	10 mg/m ³
Orange Flake Shellac	none	none

Engineering Controls Use product outdoors only! When cleaning up contents, use local and/or general exhaust.
Eye / Face Protection Safety glasses, goggles, or face shield when using product and when cleaning up spilled contents.
Skin Protection Leather work gloves when using product. Impervious protective clothing, including gloves, boots, and a lab coat, apron or coveralls, as appropriate, when cleaning up spilled contents. Wash hands and face before eating, drinking or using tobacco products.
Respiratory Protection None under normal conditions when using product. A particulate respirator (NIOSH t N95 or better filters) may be worn during the cleanup of spilled contents.
General Hygiene Use product outdoors away from combustible products. For cleanup of spilled contents, emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous materials.

9. Physical and Chemical Properties

Appearance (color, physical form, shape): Brown filled cardboard tube with white plastic cap on one end

pH: Not available	Melting Point: Not available	Solubility: Not available
Boiling Point: Not applicable	Freezing Point: Not applicable	Evaporation Rate: Not applicable
Vapor Pressure: Not applicable	Specific Gravity: Not applicable	Vapor Density: Not applicable

10. Stability and Reactivity

Chemical Stability Stable **Possibility of Hazardous Reactions** Hazardous polymerization will not occur.

Conditions to Avoid Combustible materials. Heat, flames, sparks and other sources of ignition. Moisture and incompatibles.	Incompatible Materials Combustible materials, strong acids, strong oxidizers, ammonia salts, and alkalis	Hazardous Decomposition Products Hazardous gases produced are carbon monoxide and nitrogen oxides. Burning red amorphous phosphorous gives off dense white smoke of phosphorous pentoxide, an irritant that absorbs water to become phosphoric acid, which is corrosive.
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11. Toxicology Information

Toxicology	Oral LD50	skin LD50	LC50
Potassium Chlorate	Rat: 1870 mg/kg (CAT 4)	No information found	No information found
Ethyl Alcohol	Mouse: 3450 mg/kg (CAT 5)	not stated	LC50 Mouse inhalation 39 mg/cu m/4 hr
Acetone	not stated	not stated	not stated
Red Phosphorus	Rat > 10,000 mg/kg	not stated	not stated
Charcoal	Rat: 5000 mg/kg	not stated	not stated
Cellulose Nitrate	none	none	none
Dextrin	not stated	not stated	not stated
Orange Flake Shellac	Ingredients considered non-hazardous	Ingredients considered non-hazardous	Ingredients considered non-hazardous

Acute Dose Effects
Burning ignitor can cause severe burns if in contact with body. Contents may cause moderate eye irritation or possible eye burns. Contact with skin causes irritation and possible burns, especially if skin is wet or moist. Ingestion may cause gastrointestinal irritation with nausea, vomiting and diarrhea, as well as methemoglobinemia, cyanosis, convulsions, and death. Inhalation will cause irritation to the lungs and mucus membrane.

Repeated Dose Effects
Prolonged or repeated skin contact with contents may cause dermatitis. May cause liver and kidney damage.

Irritation	Irritating to the skin and eyes on contact. Inhalation will cause irritation to the lungs and mucus membrane. Ingestion may cause gastrointestinal irritation.	Corrosivity	Contact with burning product will cause severe burns. Contents may cause eye and possible skin burns.
Carcinogenicity	None of the ingredients are listed by NTP, IARC or regulated as a carcinogen by OSHA	Reproductive Effects	No information found
Genetic Effects	No information found	Neurological Effects	No information found
Developmental Effects	No information found	Sensitization	No information found
Target Organ Effects	Eye, skin, liver and kidney		

12. Ecological Information

Aquatic Toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environmental Media
Potassium Chlorate: <i>fish: LC50 oncorhynchus mykiss (rainbow trout) 1750 mg/l – 96 hr, EC50 daphnia magna (water flea) 1093 mg/l 24 hr</i> Red Phosphorus: <i>harmful to aquatic organisms and may cause long term effects in the aquatic environment 10 mg/l < EC50/EC50/LC50≤100 mg/l, (daphnia, algae, fish)</i> Ethyl Alcohol: <i>LC50 Salmo gairdnerii (Rainbow trout) 13000 mg/L/96 hr at 12 deg C (95% Confidence limit 12000-16000 mg/L), wt 0.8 g /Static bioassay; LC50 Pimephales promelas (fathead minnows) 15.3 g/L/96 hr (95% confidence limit 14.0-16.6 g/L); age 30 days old, water hardness 47.3 mg/L (CaCO3), temp 24.3 deg C, pH 7.60, dissolved oxygen 6.8 mg/L, alkalinity 43.7 mg/L (CaCO3); tank vol: 6.3 L; additions: 3.81 vol/day /Flow-through bioassay/</i>	No information found	No information found	No information found

13. Disposal Considerations

Finished product is considered reactive and could ignite. Product is considered inert after ignition. If quantities are too large to destroy by test firing, consult factory. Caution: Product becoming wet can dry and retain its ignition properties. Making product wet is not an effective way to permanently render product inert. Spilled contents are to be disposed of in a manner consistent with federal, state, and local regulations.

14. Transportation Information

	shipping name	hazard class	ID Number	packing group	EX Number	Reportable Quantities
United States	Lighter, Fuse	1.4S	UN0131	II	EX-9508033	Phosphorus - 1 lb
International	Lighter, Fuse	1.4S	UN0131	II	EX-9508033	

15. Regulatory Information

Note: This product may be regulated by ATF as an explosive – see 27CFR Part 55

US Regulations	TSCA	CERCLA	CWA	CAA	SARA 313	SARA 302	Acute	Chronic	Fire	Reactivity	Pressure
Potassium Chlorate	yes	no	no	no	no	no	yes	no	no	yes	no
Ethyl Alcohol	yes	no	no	no	no	no	yes	yes	yes	no	no
Acetone	yes	5000 lb or 2270 kg	no	no	no	no	yes	no	no	no	no
Red Phosphorus	yes	ehs 1 lb or 0.454 kg	no	no	no	304 -01 / 302 -100	not stated	not stated	not stated	not stated	not stated
Charcoal	yes	no	no	no	no	no	not stated	not stated	not stated	not stated	not stated
Cellulose Nitrate	yes	5000 lb or 2270 kg	no	no	yes	no	not stated	not stated	not stated	not stated	not stated
Dextrin	yes	5000 lb or 2270 kg	no	no	no	no	yes	yes	no	no	no
Orange Flake Shellac	yes	ehs 1 lb or 0.454 kg	no	no	no	no	not stated	not stated	not stated	not stated	not stated

US States	Prop 65	NJ	PA
Potassium Chlorate	no	1560	no
Ethyl Alcohol	no	0844	yes
Acetone	no	0026	no
Red Phosphorus	no	1520	yes - envi
Charcoal	no	no	no
Cellulose Nitrate	no	0006	yes
Dextrin	no	4001	no
Orange Flake Shellac	no	no	no

Canada	WHMIS	DSL
	No results	yes
	B2 - D2B	yes
	D2B	yes
	No results	yes
	No results	yes
	B2 - D2B	yes
	Does not meet criteria	NDSL
	No results	yes

Europe	wgk
	2
	1
	1
	not listed
	nwg
	1
	nwg
	not listed

16. Other Information

Revision Information: December, 2011

Risk and Safety Phrases:

R10 Flammable
R38 Irritating to skin
R20 Harmful by inhalation.
R21 Harmful in contact with skin.
R22 Harmful if swallowed.
R34 Causes burns
R36 Irritating to eyes.
R37 Irritating to respiratory system.
S17 Keep away from combustible material
S16 Keep away from sources of ignition
S2 Keep out of the reach of children.

S8 Keep container dry.
S13 Keep away from food, drink and animal foodstuffs.
S24 Avoid contact with skin.
S25 Avoid contact with eyes.
S29 Do not empty into drains.
S41, In case of fire and / or explosion do not breathe fumes
S43 In case of fire use water
S51 Use only in well ventilated areas

Key / Legend:

HMIS: hazardous material identification system
NFPA: national fire protection association
CAS: Chemical Abstracts Service number
EINECS: European inventory of existing chemical substances
OSHA PEL: occupational safety and health administration permissible exposure limit
NIOSH TLV: national institute of occupational safety and health Threshold Limit Value
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer

TSCA: toxic substance control act - US
CERCLA: comprehensive environmental response, compensation and liability act - US
CWA: clean water act - US
CAA: clean air act - US
SARA: superfund amendments and reauthorization act - US
PROP 65: California's Proposition 65 list
WHMIS: workplace hazardous materials information system - Canada
DSL: Domestic Substances List - Canada
WGK: water hazard classes - Germany
ATF - bureau of alcohol, tobacco and firearms

Legal Statement:

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