COPPERHEAD CHEMICAL COMPANY

SAFETY DATA SHEET
RXL 646

1. IDENTIFICATION

Product Identity: **RXL 646**

Alternate Names: Otto Fuel II

Intended use: Propellant Ingredient

Manufacturer: Copperhead Chemical Company Inc.
120 River Road
Tamaqua, PA 18252 USA

Emergency Contacts: **CHEMTREC (USA)** **(800) 424-9300**
Copperhead Chemical Company Inc. **(888) 742-4506**

2. HAZARD(S) IDENTIFICATION

Classification of the substance or mixture:

Expl. 1.3;H203	Explosive; fire, blast or projection hazard.
Acute Tox. 1;H300	Fatal if swallowed.
STOT SE 1;H370	Causes damage to organs.
STOT RE 1;H372	Causes damage to organs through prolonged or repeated exposure.

GHS Label Elements:

Danger

Hazard Statements:
H203 Explosive; fire, blast or projection hazard.
H300 Fatal if swallowed.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or repeated exposure.

Prevention Statements:
P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.
P230 Keep wetted with dibutyl sebacate
P240 Ground / bond container and receiving equipment.
P250 Do not subject to grinding/shock/impact/friction
P260 Do not breathe mist / vapors / spray.

P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves / eye protection / face protection.

Response Statements:
P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician.
P307+311 IF exposed: Call a POISON CENTER or doctor / physician.
P314 Get Medical advice / attention if you feel unwell.
P330 Rinse mouth.
P370+380 In case of fire: Evacuate area.
P372 Explosion risk in case of fire.
P373 DO NOT fight fire when fire reaches explosives.

Storage Statements:
P401 Store in accordance with applicable regulations.
P405 Store locked up.

Disposal Statements:
P501 Dispose of contents / container in accordance with local / national regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Propylene glycol dinitrate CAS Number: 6423-43-4	76	Acute Tox. 1;H300 Acute Tox. 4;H302 STOT SE 1;H370 STOT SE 2;H371 STOT RE 1;H372 STOT RE 2;H373 Expl. 1.3;H203	[1][2]
Di-n-butyl sebacate CAS Number: 109-43-3	22.5	Not Classified	[1]
2-Nitrodiphenylamine CAS Number: 119-75-5	1.5	Skin Irrit. 2;H315 Eye Irrit. 2;H319 STOT SE 3;H335	[1]

[1] Substance classified with a health or environmental hazard.
[2] Substance with a workplace exposure limit.

H203 Explosive; fire, blast or projection hazard.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Note: This product contains desensitized explosives.

4. FIRST AID MEASURES

Description of first aid measures:

General: In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air, keep patient warm and at rest. If unconscious, place in the recovery position. If breathing has stopped, give artificial respiration. Obtain immediate medical attention.

Eyes: Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin: Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion: If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed:

Overview: Contact with the product by all routes of entry may cause vasodilation, headache, nausea, lightheadedness and hypotension. Extreme exposure can result in fatigue, confusion, convulsions, methemoglobinemia, cyanosis, respiratory paralysis, bradycardia, circulatory collapse or death.

Symptoms of Exposure:

Inhalation: Harmful or fatal if inhaled. Extreme exposure may lead to central nervous system effects (dizziness, loss of balance and coordination, unconsciousness coma and death).

Eyes: Contact with the eye may cause irritation.

Skin: Contact with skin may cause irritation.

Ingestion: Harmful or fatal if swallowed. Extreme exposure may produce central nervous system effects (dizziness, loss of balance and coordination, unconsciousness coma and death).

Chronic Effects: No applicable information found.

5. FIRE FIGHTING MEASURES

Extinguishing media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES!

Special hazards arising from the substance or mixture:

PRODUCT IS AN EXPLOSIVE SUBSTANCE!

DO NOT FIGHT FIRES INVOLVING EXPLOSIVES!

SEVERE EXPLOSION HAZARD! Explosion can be caused by fire, sparks, excessive heat, impact, shock or friction. Risk of explosion increases with large quantities or confinement by tanks, drums, or other closed containers.

The explosive hazards of residual product or concentrated explosive may remain after the fire is extinguished and must be addressed before beginning any investigation or clean-up activities.

Possible toxic smoke, vapors, fallout and runoff water can result from fires depending on extent of combustion and presence of other combustible materials. Contaminated buildings, areas, and equipment must be properly decontaminated before reuse.

Advice for fire-fighters:

DO NOT FIGHT FIRES INVOLVING EXPLOSIVES! Immediately evacuate the area to a safe distance. Utilize fixed extinguishing equipment and wear full protective clothing including SCBA when protecting surrounding structures.

ERG Guide No. 112

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

All operations should be performed by trained personnel familiar with the hazards and necessary precautions. Evacuate the area to a safe distance and prevent unnecessary personnel from entering the area. Put on appropriate personal protective equipment (see section 8). Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing. Dispose of contaminated articles or wash them thoroughly before reuse.

Environmental precautions: Do not allow spills to enter drains or waterways.

Methods and material for containment and cleaning up:

It is recommended that prior to any spill, a RCRA permitted Treatment, Storage and Disposal Facility be consulted for the proper containers and absorbents to be used. Notify safety personnel and utilize personnel trained in the clean-up of products containing explosives. Do not subject product to fire, sparks, excessive heat, impact, friction or shock. Eliminate sources

of ignition and ventilate spill area. Stop the leak if it is possible to do so without risk. Desensitize the spilled material with a compatible, miscible solvent. Use non-abrasive absorbents such as wipes or pads.

Caution! The presence or addition of abrasives or grit increases the risk of explosion caused by friction.

Caution! Evaporation of the solvent will increase the concentration of the explosive and increase the risk of explosion.

Take up the liquid before the solvent evaporates. Place the used absorbents in closed containers with bag liners to prevent evaporation of the solvent. After the spilled material is taken up, the spill area may be treated with fresh nitroglycerin destroyer.

Caution! Nitroglycerin destroyer contains a flammable component and liberates poisonous gas.

Nitroglycerin destroyer is made by mixing three parts by volume of Solution A with one part of Solution B, where Solution A is three parts by volume of ethanol with one part acetone and Solution B is 480 grams of 60% technical grade sodium sulfide in 1500 ml of water. Solution A is a flammable liquid and Solution B will react to liberate poisonous hydrogen sulfide gas. Remove all sources of ignition and ventilate spill area. Follow precautions on the supplier's material safety data sheets for the ingredients in Solutions A and B. Apply the nitroglycerin destroyer to the contaminated area. Some bubbling will occur and the mixture will turn yellow. When the reaction appears complete, mop it up with a cloth or sponge. Repeat until no color change occurs. Small quantities of hydrogen sulfide gas are evolved during the reaction. Provide adequate ventilation or an approved respirator for hydrogen sulfide (TLV 10 ppm). The cloth or sponge should be disposed of properly. Nitroglycerin destroyer is intended to be used only to destroy thin films of nitrate esters. The heat of reaction makes destruction of larger amounts by this method hazardous.

7. HANDLING AND STORAGE

Precautions for safe handling:

DANGER! SEVERE EXPLOSION HAZARD. Do not subject product to fire, sparks, excessive heat, impact, friction or shock. All operations should be performed by trained personnel familiar with the hazards and necessary precautions. Handle in well ventilated area designed for processing explosives. Observe exposure limits. Avoid contact with the product and avoid breathing vapors or aerosols. Keep containers closed. Concentrated explosives, even in small amounts, are an extreme explosion hazard. Explosion of concentrated explosive may be caused by fire, sparks, excessive heat, impact, friction or shock. Non-sparking tools and equipment are recommended. Equipment should be bonded and grounded. Avoid operations that could generate electrostatic charges. Do not eat, drink, use tobacco products, apply cosmetics, or take medications in areas where this product is handled. Wash hands and face thoroughly with soap and water after handling and prior to eating, drinking, using tobacco products, applying cosmetics or taking medications. Thorough showering and changing into fresh

clothes at the end of the work shift is strongly recommended. Launder work clothes daily or use disposable coveralls. Wash work clothes separately from other laundry.

Conditions for safe storage:

Handle containers carefully to prevent damage and spillage. Product should be stored in closed containers in a licensed, explosives storage magazine according to local, state and federal regulations. Store separate from incompatible materials. Product may become acidic as it ages. The pH and stabilizer content should be monitored regularly and the product should be destroyed or reprocessed if there is an indication of progressive degradation.

Incompatible materials: Oxidizers, acids and bases

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Exposure limits for the mixture have not been assigned. Information about the ingredients is provided as a guide.

CAS No.	Ingredient	Source	Value
109-43-3	Di-n-butyl sebacate	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
119-75-5	2-Nitrodiphenylamine	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
6423-43-4	Propylene glycol dinitrate	OSHA	No Established Limit
		ACGIH	TWA: 0.05 ppmSkin
		NIOSH	TWA 0.05 ppm (0.3 mg/m3) [skin]
		Supplier	No Established Limit

Exposure controls:

Respiratory: Occupation exposures from this material should be determined by individuals with experience in industrial hygiene. The selection of appropriate respiratory protective equipment should be based on results from industrial hygiene surveys and respirator manufacturer's specifications and/or recommendations.

Eyes: Wear chemical safety glasses, goggles or face shield appropriate for exposure potential. Wearing contact lenses is not recommended when working with hazardous chemicals.

Skin: Users must make the final determination of appropriate protective clothing based on the conditions of use. Use protective clothing which is appropriate for

the potential exposure. Any portion of the body which may come in contact with the product should be protected by materials that are impervious to the product under the conditions of use. Remove any contaminated clothing or footwear immediately. Dispose of contaminated articles or thoroughly decontaminate them before reuse. A one piece cotton uniform, conductive foot protection and cotton undergarments with appropriate outer protection is recommended. Clothing and shoes should have no metal fasteners or other items that might subject product to hazardous impact or friction.

Engineering Controls: Provide adequate ventilation suitable for flammable vapors. Where practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Do not allow explosives to accumulate in the exhaust system. If ventilation is not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn. Provide emergency eyewash stations and safety showers.

Other Work Practices: Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing. Discard contaminated articles or wash them thoroughly before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Red-orange Liquid
Odor	No applicable information found
Odor threshold	No applicable information found
pH	No applicable information found
Melting point / freezing point	-18°F, -28°C
Initial boiling point and boiling range	250°F, 121°C
Flash Point	265°F, 129°C (COC)
Evaporation rate	No applicable information found
Flammability (solid, gas)	No applicable information found
Upper/lower flammability or explosive limits	No applicable information found
Vapor pressure	0.0877 mm/Hg @ 72°F
Vapor Density	No applicable information found
Specific Gravity	1.232
Solubility in Water	Slight
Partition coefficient n-octanol/water (Log Kow)	No applicable information found
Auto-ignition temperature	No applicable information found
Decomposition temperature	No applicable information found
Viscosity (cSt)	No applicable information found

10. STABILITY AND REACTIVITY

Reactivity: Hazardous Polymerization will not occur.

Chemical stability: Stable under normal circumstances.

Possibility of hazardous reactions: No applicable information found.

Conditions to avoid: Avoid contact with friction, impact, open flame, sparks or hot surfaces.

Incompatible materials: Oxidizers, acids and bases.

Hazardous decomposition products: High temperatures and fires may produce such toxic substances as nitrogen oxides, carbon monoxide, and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Routes of exposure: Skin contact, eye contact, inhalation, ingestion and injection are potential routes of exposure. This product can be absorbed through the skin.

Symptoms of exposure: See Section 4.

Acute Toxicity: No applicable information was found for the mixture or its components.

Acute Toxicity Estimate:

Classification	Category	Hazard Description
Acute toxicity (oral)	1	Fatal if swallowed.
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	1	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	---	Not Applicable

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Carcinogenic Effects: This product does not contain any ingredients that are carcinogens or potential carcinogens listed by OSHA, NTP or IARC.

12. ECOLOGICAL INFORMATION

Ecological Toxicity: No applicable information found.

Aquatic Ecotoxicity: No applicable information found.

Persistence and degradability: No applicable information found.

Bioaccumulative potential: No applicable information found.

Mobility in soil: No applicable information found.

Results of PBT and vPvB assessment: No applicable information found.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues: Waste residues of this product are hazardous waste.

Disposal Method: Before using the product, consult a RCRA permitted disposal facility regarding arrangements for disposal. All wastes must be disposed in accordance with RCRA hazardous waste regulations. All wastes must be disposed in accordance with RCRA hazardous waste regulations. Waste, even small quantities, should never be poured down the drain. Waste residues of the product should be destroyed at a RCRA permitted disposal facility equipped for the destruction of explosives.

Container Disposal: The empty product container should be destroyed at a RCRA permitted disposal facility equipped for the destruction of explosives. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product.

14. TRANSPORT INFORMATION

This material is regulated by the US DOT.

UN Number:	UN0477
Proper Shipping Name:	Substances, Explosives, N.O.S.
Hazardous Class:	1.3C
Packing Group:	II

15. REGULATORY INFORMATION

Regulatory Overview: The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA): All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification: D1A

US EPA Tier II Hazards:

Fire:	No
Sudden Release of Pressure:	Yes
Reactive:	Yes
Immediate (Acute):	Yes
Delayed (Chronic):	Yes

EPCRA 311/312 Chemicals and RQs (lbs): To the best of our knowledge, there are no components at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous: To the best of our knowledge, there are no components at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals: To the best of our knowledge, there are no components at levels which require reporting under this statute.

Proposition 65: To the best of our knowledge, there are no components at levels which require reporting under this statute.

New Jersey RTK Substances (>1%): Propylene glycol dinitrate

Pennsylvania RTK Substances (>1%) Propylene glycol dinitrate

16. OTHER INFORMATION

Date Prepared: 1/22/16

The information contained herein is believed to be accurate and represents the best information currently available to us. This document is intended only as a guide to the appropriate precautionary handing 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. No warranty, either expressed or implied, of merchantability or fitness for a particular purpose, or of any nature with respect to the product, or to the information, is made herein.

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