COPPERHEAD CHEMICAL COMPANY

SAFETY DATA SHEET
SDM® 36
Nitroglycerin in ethanol

1. IDENTIFICATION

Product Identifier: **SDM® 36**

Alternate Names: Nitroglycerin in ethanol

Intended use: **Pharmaceutical 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:

Flam. Liq. 2;H225	Highly Flammable liquid and vapor.
Skin Sens. 1;H317	May cause an allergic skin reaction.
STOT SE 1;H370	Causes damage to organs. Specific Target Organs: (Not Available)
STOT RE 2;H373	May cause damage to organs through prolonged or repeated exposure. Specific

GHS Label Elements:

Danger

Hazard Statements:
H225 Highly flammable liquid and vapor.
H317 May cause an allergic skin reaction.
H370 Causes damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.

Prevention Statements:
P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.
P235 Keep cool.
P240 Ground / bond container and receiving equipment.
P241 Use explosion-proof electrical / ventilating / light / equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing mist / vapors / spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves / eye protection / face protection.

Response Statements:
P302+352 IF ON SKIN: Wash with plenty of soap and water.
P303+361+353 IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.
P307+311 IF exposed: Call a POISON CENTER or doctor / physician.
P313 Get medical advice / attention.
P314 Get Medical advice / attention if you feel unwell.
P333+313 If skin irritation or a rash occurs: Get medical advice / attention.
P363 Wash contaminated clothing before reuse.
P370+378 In case of fire: Use extinguishing media listed in section 5 of SDS for extinction.

Storage Statements:
P403+233 Store in a well ventilated place. Keep container tightly closed.
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
Ethanol CAS Number: 64-17-5	95	Flam. Liq. 2;H225	[1][2]
Nitroglycerin (Glycerol Trinitrate) CAS Number: 55-63-0	5	Acute Tox. 4;H302 Skin Sens. 1;H317 STOT SE 1;H370 STOT RE 2;H373 Aquatic Chronic 1;H410 Aquatic Acute 1;H400 Expl. 1.3;H203	[1][2]

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

H203 Explosive; fire, blast or projection hazard.
H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H370 Causes damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

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 breathing has stopped, give artificial respiration. If unconscious place in the recovery position and 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.

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 if inhaled. Extreme exposure may lead to central nervous system effects (drowsiness, nausea, headaches, paralysis, loss of consciousness and death.

Eyes: Contact with the eye may cause moderate to severe irritation.

Skin: Harmful if in contact with skin. Skin irritant. Prolonged or repeated exposure may result in irritation and dermatitis. May be a sensitizer.

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

Chronic Effects: Overexposure may damage liver, kidneys and heart.

5. FIRE FIGHTING MEASURES

Extinguishing media:
It is preferable to use remote monitors to fight any fire involving product. Use Chemical powders, carbon dioxide, halogenated agents or foam. Contacting the product with water may dissolve the desensitizer causing dangerous accumulation of nitroglycerin.

Special hazards arising from the substance or mixture:

PRODUCT CONTAINS AN EXPLOSIVE SUBSTANCE! Contacting the product with water will separate the nitroglycerin from the desensitizer and concentrate the nitroglycerin. Concentrated nitroglycerin, even in small amounts, is an extreme explosion hazard. Explosion of concentrated nitroglycerin may be caused by fire, sparks, excessive heat, impact, friction or shock. The explosive hazards of concentrated nitroglycerin may remain after the fire is extinguished and must be addressed before beginning any investigation or clean-up activities.

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

Advice for fire-fighters: Utilize fixed extinguishing equipment and wear full protective clothing including SCBA when protecting surrounding structures. Avoid activities that may separate the nitroglycerin from the desensitizer.

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 nitroglycerin. The heat of reaction makes destruction of larger amounts by this method hazardous.

7. HANDLING AND STORAGE

All operations should be performed by trained personnel familiar with the hazards and necessary precautions. Follow procedures specified in the National Fire Protection Association Codes and Standards for handling flammable liquids. Handle in well ventilated area. Observe exposure limits. Avoid contact with the product and avoid breathing vapors or aerosols. Avoid fire, sparks, excessive heat, impact, friction, shock and direct sunlight. Avoid operations that could increase the concentration of the nitroglycerin or separate the nitroglycerin from the desensitizer. Separation of nitroglycerin from the desensitizer, whether by extraction, evaporation, or any other means, is EXTREMELY HAZARDOUS. Keep containers closed. Undiluted nitroglycerin, even in small amounts is an extreme explosion hazard. Explosion of undiluted or concentrated nitroglycerin 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. This product should be stored in a cool, dry place at 4 to 30°C away from sources of heat and other flammable materials. The storage area should be designed in accordance with NFPA 30 "Flammable and Combustible Liquids Code" as well as all applicable building and fire codes. Avoid exposing to heat or flame.

Incompatible materials: Water, oxidizers, acids and bases

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Exposure limits for the mixture have not been assigned. Limits established for the ingredients are provided as a guide.

CAS No.	Ingredient	Source	Value
64-17-5	Ethanol	OSHA	TWA 1000 ppm (1900 mg/m3)
		ACGIH	STEL: 1000 ppm Revised 2009,
		NIOSH	TWA 1000 ppm (1900 mg/m3)
		Supplier	No Established Limit
55-63-0	Nitroglycerin	OSHA	C 0.2 ppm (2 mg/m3) [skin]
		ACGIH	TWA: 0.05 ppm Skin
		NIOSH	ST 0.1 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. Nitroglycerin may be absorbed by some types of rubber and this may be a consideration in determining the service life of elastomeric respirator facepieces.

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: 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 should not have pockets that could accumulate product. 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. Where practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Do not allow product 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 thoroughly before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless Liquid
Odor	Alcohol Odor
Odor threshold	No applicable information found
pH	No applicable information found
Melting point / freezing point	No applicable information found
Initial boiling point and boiling range	No applicable information found
Flash Point	No applicable information found
Evaporation rate (Ether = 1)	No applicable information found
Flammability (solid, gas)	No applicable information found
Upper/lower flammability or explosive limits	No applicable information found
Vapor pressure	No applicable information found
Vapor Density	> 1
Specific Gravity	No applicable information found
Solubility in Water	No data for mixture, ethanol = complete, NG = 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 conditions.

Possibility of hazardous reactions: No applicable information found.

Conditions to avoid: Avoid operations that could increase the concentration of the nitroglycerin or separate the nitroglycerin from the diluent. Concentrated nitroglycerin is explosive. Contacting the product with water will dissolve the diluent and concentrate the nitroglycerin.

Incompatible materials: Water, 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. Nitroglycerin can be absorbed through the skin.

Symptoms of exposure:
See Section 4.

Acute toxicity:
No applicable information was found for the mixture. Information about the ingredients is provided as a guide.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Ethanol (64-17-5)	7,060.00, Rat - Category: NA	20,000.00, Rabbit - Category: NA	124.70, Rat - Category: NA	No applicable information found	No applicable information found
Nitroglycerin (55-63-0)	685.00, Rat - Category: 4	9,560.00, Rat - Category: NA	No applicable information found	No applicable information found	No applicable information found

Acute Toxicity Estimate:

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
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	1	May cause an allergic skin reaction.
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	2	May cause 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: Toxic to aquatic life

Aquatic Ecotoxicity: No applicable information was found for the mixture. Information about the ingredients is provided as a guide.

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Ethanol - (64-17-5)	42.00, Oncorhynchus mykiss	2.00, Daphnia magna	17.921 (96 hr), Ulva pertusa
Nitroglycerin - (55-63-0)	3.58, Pimephales promelas	11.50, Selenastrum capricornutum	16.48 (72 hr), Ceriodaphnia dubia

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. 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 ID Number:	UN3064
Proper Shipping Name:	Nitroglycerin, solution in alcohol
Hazard Class:	3
Hazard 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: B2 D2B

US EPA Tier II Hazards

Fire:	Yes
Sudden Release of Pressure:	Yes
Reactive:	Yes
Immediate (Acute):	Yes
Delayed (Chronic):	Yes

EPCRA 311/312 Chemicals: Nitroglycerin (RQ: 10 lbs)

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

EPCRA 313 Toxic Chemicals: Nitroglycerin

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

New Jersey RTK Substances (>1%): Ethanol
Nitroglycerin

Pennsylvania RTK Substances (>1%): Ethanol
Nitroglycerin

16. OTHER INFORMATION

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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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