

POWER SERVICE PRODUCTS, INC.
MATERIAL SAFETY DATA SHEET



SECTION 1 - CHEMICAL COMPANY AND PRODUCT IDENTIFICATION

PRODUCT NAME: BIO KLEEN DIESEL FUEL BIOCIDE

Unless otherwise noted, all sections of this MSDS apply to each of the following part numbers.

PART NUMBERS:

9016-06, 9041-04, 9080-06, 9055-01

EPA ESTABLISHMENT NUMBER: 069633-TX-001

EPA REGISTERED PESTICIDE NUMBER: 464-659-069633 and 48301-7-069633

COMPANY IDENTIFICATION:

Power Service Products, Inc.
P.O. Box 1089
Weatherford, TX 76086
Email: psp@powerservice.com
Phone: 800/643-9089 or 817-599-9486
Fax: 817-599-4893

Emergency Phone Number: Within USA 1-800-424-9300. Outside USA 001-703-527-3887
(Call Collect).

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Specific chemical information is being withheld as a Trade Secret. Specific chemical information will be made available to health professionals in accordance with 29 CFR 1910.1200.

INGREDIENTS

4-(2-Nitrobutyl)morpholine
Methylene Dimorpholine
4,4'(2-Ethyl-2-nitrotrimethylene)dimorpholine
Morpholine
1-Nitropropane

Revised: March 24, 2009
Supersedes: October 30, 2008
POWER SERVICE BIO KLEEN DIESEL FUEL BIOCIDE

SECTION 3 - HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

EYES: CAUSES SEVERE EYE DAMAGE. May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Mist may cause severe eye injury and corneal injury.

SKIN: CAUSES SEVERE SKIN BURNS. MAY CAUSE ALLERGIC SKIN REACTION. SKIN IRRITATION. HARMFUL OR FATAL IF ABSORBED THROUGH SKIN. Brief contact may cause severe skin irritation with pain and local redness. Prolonged contact may cause skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling and tissue damage. Prolonged or widespread skin contact may result in absorption of harmful amounts. Causes skin sensitization.

INHALATION: Vapor from heated material or mist may cause respiratory irritation.

INGESTION: HARMFUL OR FATAL IF SWALLOWED. Low toxicity if swallowed. Small amounts incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

SECTION 4 - FIRST AID MEASURES

As a precaution, exposure to liquids, vapors, mists and fumes should be minimized.

EYE CONTACT:

Hold eyelids apart and flush eyes with large amounts of water for at least 30 minutes. Remove contact lenses, if present, after first 5 minutes of rinsing. Obtain prompt medical attention, preferably from an ophthalmologist.

SKIN CONTACT:

Wash contact area with soap and water for 15-20 minutes. Discard contaminated clothing and shoes or thoroughly clean before reuse. If irritation persists, call a physician or call a poison control center for advice.

INHALATION:

If overcome by vapors, move the exposed person to fresh air. If breathing is labored, administer oxygen. If breathing has stopped, apply artificial respiration and use rescuer protection (pocket mask etc.) Call a poison control center for advice.

INGESTION:

Call a poison control center or physician immediately for treatment advice. If swallowed, do NOT induce vomiting. Give the person a glass of water to drink. Never give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN:

Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Probably mucosal damage may contraindicate the use of gastric

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCIDE

lavage. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

FLAMMABLE PROPERTIES:

FLASH POINT: 160°F. (71°C.)

FLAMMABLE LIMITS: lower: Not Determined upper: Not Determined

AUTOIGNITION TEMPERATURE: Not Determined

EXTINGUISHING MEDIA:

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective. Water fog, applied gently may be used as a blanket for fire extinguishment.

FIRE FIGHTING:

FIRE FIGHTING INSTRUCTIONS: Use standard protective equipment including self-contained breathing apparatus (SCBA). Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be use as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. See Section 6 for Accidental Release Measures. See Section 12 for Ecological Information.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to : Nitrogen oxides. Carbon monoxide. Carbon dioxide.

NOTE: EMPTY CONTAINERS CONTAIN COMBUSTIBLE VAPORS. DO NOT USE CUTTING TORCH EQUIPMENT OR ANY OTHER FLAME OR OTHER SOURCES OF IGNITION ON ANY EMPTY CONTAINER.

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCID

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PROTECTIVE MEASURES:

Avoid contact with spilled material. Use appropriate safety equipment. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind or spill. Ventilate area of leak or spill. No smoking in area. For large spills, warn public of downwind explosion hazard. See Section 3 for Hazards Identification. See Section 4 for First Aid Measures. See Section 7 for Handling and Storage for additional precautionary measures. See Section 8 for Exposure Controls and Personal Protective Equipment.

SPILL MANAGEMENT:

Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13 for Disposal Considerations. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12 for Ecological Information. Local, state and federal laws and/or regulations may apply to releases and disposal of this material, as well as those materials and items employed in the clean-up releases. The user/responder will need to determine which local, state and federal laws and/or regulations are applicable. The National Response Center can be reached at 1-800-424-8802.

SECTION 7 - HANDLING AND STORAGE

HANDLING: KEEP OUT OF REACH OF CHILDREN. Avoid contact with eyes, skin and clothing. Avoid breathing vapor. Avoid prolonged or repeated contact with skin. Do not swallow. Keep container closed. Use with adequate ventilation. Prevent small spills and leakage to avoid slip hazard. Keep away from ignition sources such as heat, sparks and open flame. No smoking. See Section 8 for Exposure Controls and Personal Protective Equipment.

STORING: USE AND STORE ONLY IN A WELL VENTILATED AREA. Keep container closed when not in use. See Section 10 for Stability and Reactivity.

NOTE: CONTAINERS ARE STRICTLY SINGLE TRIP CONTAINERS. THEY ARE NOT TO BE USED FOR ANY REASON AFTER BEING EMPTIED. EMPTY CONTAINERS CONTAIN COMBUSTIBLE VAPORS. DO NOT USE CUTTING TORCH EQUIPMENT OR ANY OTHER FLAME OR OTHER SOURCES OF IGNITION ON ANY EMPTY CONTAINER.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE GUIDELINES:

OSHA - PEL		ACGIH - TWA
PPM	MgM3	PPM
MORPHOLINE		

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCIDES

20 skin	70	20 skin
1-NITROPROPANE		
25	90	25

ENGINEERING CONTROLS: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Local exhaust ventilation is recommended to control exposure.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Eyes and Face: Use chemical goggles. Eye wash fountain should be located within immediate work area.

Skin: Use protective clothing chemically resistant to this material, including gloves. Safety shower should be located within immediate work area.

Respiratory: Wear a NIOSH/MSHA approved respirator as necessary.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Practice good housekeeping.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	Liquid
COLOR	Straw
ODOR	Amine
POUR POINT	50°F (10°C)
BOILING POINT	346.8°F (174.9°C)
VAPOR PRESSURE (psi)	12.3 mmHg @ 20°C
VAPOR DENSITY (AIR = 1)	Not Determined
pH	9.5 – 10.0

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY:

Stable under normal conditions.

CONDITIONS TO AVOID:

Can crystallize. Dissolve crystals before use by warming and mixing. Avoid temperatures above 95°F. (35°C.) and below 50°F. (10°C.). Potentially violent decomposition can occur above 212°F. (100°C.). Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

MATERIALS TO AVOID:

Oxidizing materials. Acidic pH. Acids. Reactions with acid can generate flammable formaldehyde gas.

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCID

HAZARDOUS DECOMPOSITION:

Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic flammable gases can be released during decomposition.

HAZARDOUS POLYMERIZATION:

Hazardous polymerization will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS:****ACUTE TOXICITY:**

INGESTION: LD50, Rat 620 mg/kg

SKIN ABSORPTION: LD50, Rabbit 420 mg/kg

INHALATION: LC50, 1 h, Rat, male 746 mg/l

SENSITIZATION: Skin contact may cause an allergic skin reaction.

SECTION 12 - ECOLOGICAL INFORMATION**ECOTOXICITY:**

Material is highly toxic to aquatic organisms on an acute basis (LC50 / EC50 between 0.1 and 1 mg/L in most sensitive species tested). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity: LC50, rainbow trout (*Oncorhynchus mykiss*): 1.1 mg/l

Aquatic Invertebrate Acute Toxicity: LC50, water flea *Daphnia magna*; 1.9 mg/l

Aquatic Plant Toxicity: EC50, green alga *Selenastrum capricornutum*, biomass growth inhibition, 72 h: 0.35 mg/l

Toxicity to Micro-organisms: EC50; activated sludge, respiration inhibition: 306 mg/l

Toxicity to Non-mammalian Terrestrial Species:

Oral LD50, mallard (*Anas platyrhynchos*): 2,695 mg/kg

Dietary LC50, bobwhite (*Colinus virginianus*): > 5,620 ppm

Dietary LC50, mallard (*Anas platyrhynchos*): >5,620 ppm

CHEMICAL FATE:**Data for Component: 4-(2-Nitrobutyl)morpholine****Movement & Partitioning:**

Bioconcentration potential is low (BCF < 100 or Log Pow <3). Potential for mobility in soil is high (Koc between 50 and 150). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCIDE

Henry's Law Constant (H): 1.14E-11 atm*m3/mole
Partition coefficient, n-octanol/water (log Pow): 1.12 Shake flask (OECD 107 Test)
Partition coefficient, soil organic carbon/water (Koc): 47 Estimated
Bioconcentration Factor (BCF): 3; fish; Estimated

Data for Component: 4,4'-(2-Ethyl-2-nitropropane-1,3diyl)bismorpholine

Movement & Partitioning:

Bioconcentration potential is low (BCF < 100 or Log Pow <3). Potential for mobility in soil is high (Koc between 50 and 150). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henry's Law Constant (H): 1.51E-15 atm*m3/mole

Partition coefficient, n-octanol/water (log Pow): 1.98 Estimation by Liquid Chromatography

Partition coefficient, soil organic carbon/water (Koc): 72 Estimated

Bioconcentration Factor (BCF): 3; fish; Estimated

Data for Component: Morpholine

Movement & Partitioning:

Bioconcentration potential is low (BCF < 100 or Log Pow <3). Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henry's Law Constant (H): 1.51E-6 atm*m3/mole; 25°C. Estimated

Partition coefficient, n-octanol/water (log Pow): -0.86 Measured

Partition coefficient, soil organic carbon/water (Koc): 5.1 - 8 Estimated

Bioconcentration Factor (BCF): <2.8; common carp (Cyprinus carpio)

Persistence and Degradability:

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability). Biodegradation rate may increase in soil and/or water with acclimation.

Indirect Photodegradation with OH Radicals:

Rate Constant	Atmospheric Half-life	Method
1.38E-10 cm3/s	0.931 h	Estimated

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
93%	25 d	OECD 301E Test
97%	28 d	OECD 302B Test

Biological Oxygen Demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
		38.1 %	
Theoretical Oxygen Demand: 2.57 mg/mg			

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCID

Data for Component: 1-Nitropropane**Movement & Partitioning:**

Bioconcentration potential is low (BCF < 100 or Log Pow <3). Potential for mobility in soil is high (Koc between 50 and 150).

Henry's Law Constant (H): 8.70E-5 atm*m3/mole; 25°C. Estimated

Partition coefficient, n-octanol/water (log Pow): 0.87 Measured

Partition coefficient, soil organic carbon/water (Koc): 71 Estimated

Bioconcentration Factor (BCF): 1.3; fish; Measured

Persistence and Degradability:

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Indirect Photodegradation with OH Radicals:

Rate Constant	Atmospheric Half-life	Method
0.43E-12 cm3/s	25 d	Estimated

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
9 - 45%	28 d	OECD 301D Test

Biological Oxygen Demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
		0 %	
Chemical Oxygen Demand: 0.77 mg/mg			
Theoretical Oxygen Demand: 1.80 mg/mg			

SECTION 13 - DISPOSAL CONSIDERATIONS

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. POWER SERVICE PRODUCTS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SECTION 2 COMPOSITION INFORMATION. FOR UNUSED & UNCOMTAMINATED PRODUCTS, the preferred option is to contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. The preferred option in other jurisdictions is to contact the regulatory authority for this product for guidance.

State or local laws may impose additional regulatory requirements regarding disposal.

Revised: March 24, 2009

Supersedes: October 30, 2008

POWER SERVICE BIO KLEEN DIESEL FUEL BIOCIDE

EMPTY CONTAINER WARNING: Empty containers may contain residue and can be dangerous. See Section 5 for Fire and Explosion Hazard Data.

SECTION 14 - TRANSPORTATION INFORMATION

The following part numbers are Consumer Commodities and are not regulated by DOT:
9016-06, 9041-04, 9080-06

The following part number is regulated by DOT:
9055-01

PROPER SHIPPING NAME: Disinfectant, Liquid, Toxic, N.O.S., (4-(2-Nitrobutyl)Morpholine)
HAZARD CLASS: 6.1
I.D. NUMBER: UN3142
PACKING GROUP: III
PLACARDING: Toxic

SECTION 15 - REGULATORY INFORMATION

§14(a) Consumer Product Safety Act General Certificate of Conformity

Power Service Products, Inc. certifies that this product meets the requirements of the US CPSC Federal Hazardous Substances Act Regulations and the Poison Prevention Packaging Act of 1970 Regulations. Details of the program upon which this Certificate is based are available from the Power Service Products Compliance Coordinator upon request.

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200

TSCA STATUS:

All chemical substances found in this product comply with the Toxic Substances Control Act inventory reporting requirements.

EPA SARA TITLE III CHEMICAL LISTINGS:

Section 302 Extremely Hazardous Substances: None

Sections 311/ 312 Hazard Class:

Acute Health Effects: Yes Sudden Release of Pressure Hazard: No
Chronic Health Effects: No Reactivity Hazard: No
Fire Hazard: Yes

NFPA (NATIONAL FIRE PROTECTION ASSOCIATION) RATING:

HEALTH: 3

FIRE: 2

REACTIVITY: 3

Section 313:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

The following components of this material are found on these state regulatory lists.

1-Nitropropane: PA Hazardous Substances List and/or PA Environmental Hazardous Substance List

Morpholine: PA Hazardous Substances List and/or PA Environmental Hazardous Substance List

SECTION 16 – OTHER INFORMATION

The information contained herein is offered in good faith and is believed to be accurate based on the data available to us as of the date of MSDS preparation. The information in this document applies to this specific product as supplied. It may not be appropriate for this product if the product is used in combination with other materials. The information in this document is not intended to constitute product performance information. Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product. No statement shall be construed as an endorsement of any product or process. The recommended industrial hygiene and safe handling procedures are believed to be valid in the context of the intended use as described in product labeling. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. You are urged to obtain material safety data sheets for all products you buy, process, use or distribute, and are encouraged to advise those who may come in contact with such products of the information contained therein. Regulatory requirements are subject to change and may differ between locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. No warranty or guarantee is expressed or implied with respect to this product, the accuracy and sufficiency of the data or recommendations herein, or the results to be obtained from the use of this product. IN NO EVENT SHALL POWER SERVICE PRODUCTS, INC. BE LIABLE FOR ANY LOSS, CLAIM, DAMAGE OR LIABILITY OF ANY KIND, WHICH MAY ARISE FROM OR IN CONNECTION WITH THE INFORMATION CONTAINED IN THIS DOCUMENT OR FROM THE USE, HANDLING OR STORAGE OF THE PRODUCT BY THE BUYER/USER, WHETHER DIRECT, INDIRECT, OR CONSEQUENTIAL, OR FOR ANY CLAIM BY ANY THIRD PARTY, BEYOND THE PURCHASE PRICE OR REPLACEMENT OF THE PRODUCT IN CONNECTION WITH WHICH SUCH LOSS, CLAIM, DAMAGE OR LIABILITY AROSE.

Revised: March 24, 2009

Supersedes: October 30, 2008

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