



Material Safety Data Sheet

BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR

1. Product and company identification

Supplier	: Chemtool Incorporated 801 West Rockton Road Rockton, IL 61072 U.S.A. Tel: +01 815.957.4140 Fax: +01 815.624.0292
Material uses	: Industrial applications: Cleaner. Aerosol.
Product code	: 4028-9046741
MSDS #	: 2358
Validation date	: 10/3/2013.
In case of emergency	: INFOTRAC U.S. and Canada - 800.535.5053 Outside the U.S. and Canada - +01 352.323.3500

2. Hazards identification

Emergency overview

Physical state	: Liquid [Aerosol. Clear.]
Color	: Orange.
Odor	: Ammoniacal.
Signal word	: DANGER!
Hazard statements	: EXTREMELY FLAMMABLE AEROSOL. HARMFUL IF INHALED. CAUSES EYE IRRITATION. MAY CAUSE SKIN IRRITATION.
Precautionary measures	: Do not breathe vapor or mist. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Keep container closed. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Wash thoroughly after handling.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Routes of entry : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Inhalation : May be harmful if inhaled.

Validated on 10/3/2013.

2. Hazards identification

Ingestion : No known significant effects or critical hazards.

Skin : May cause slight transient irritation.

Eyes : Causes eye irritation.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which may cause damage to the following organs: blood, kidneys, liver, heart, spleen, lymphatic system, upper respiratory tract, skin, bone marrow, central nervous system (CNS), eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : No specific data.

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : Adverse symptoms may include the following:
pain or irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Butane	106-97-8	1-5
2-butoxyethanol	111-76-2	1-5
propane	74-98-6	0.5-1.5

Canada

Name	CAS number	%
Butane	106-97-8	1-5
2-butoxyethanol	111-76-2	1-5
propane	74-98-6	0.5-1.5

Mexico

Classification

3. Composition/information on ingredients

Name	CAS number	UN number	%	IDLH	H	F	R	Special
Butane	106-97-8	UN1954	1-5	-	1	4	0	-
2-butoxyethanol	111-76-2	UN2810	1-5	700 ppm	3	2	0	-
propane	74-98-6	UN1954	0.5-1.5	2100 ppm	2	4	0	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

- Flammability of the product** : Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Empty containers retain product residue and can be hazardous.
- Storage** : Do not store above the following temperature: 48.9°C (120°F). Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
Butane	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 800 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 1/2013). TWA: 800 ppm 10 hours. TWA: 1900 mg/m³ 10 hours.</p> <p>ACGIH TLV (United States, 3/2012). TWA: 1000 ppm 8 hours.</p>
2-butoxyethanol	<p>OSHA PEL 1989 (United States, 3/1989). Absorbed through skin. TWA: 25 ppm 8 hours. TWA: 120 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 1/2013). Absorbed through skin. TWA: 5 ppm 10 hours. TWA: 24 mg/m³ 10 hours.</p> <p>ACGIH TLV (United States, 3/2012). TWA: 20 ppm 8 hours.</p> <p>OSHA PEL (United States, 6/2010). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 240 mg/m³ 8 hours.</p>
propane	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 1000 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 1/2013). TWA: 1000 ppm 10 hours. TWA: 1800 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2010). TWA: 1000 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.</p> <p>ACGIH TLV (United States, 3/2012). TWA: 1000 ppm 8 hours.</p>

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
Butane	US ACGIH 3/2012	1000	-	-	-	-	-	-	-	-	[3]
	AB 4/2009	1000	-	-	-	-	-	-	-	-	
	BC 4/2012	600	-	-	750	-	-	-	-	-	
	ON 1/2013	800	-	-	-	-	-	-	-	-	
	QC 12/2012	800	1900	-	-	-	-	-	-	-	
2-butoxyethanol	US ACGIH 3/2012	20	-	-	-	-	-	-	-	-	
	AB 4/2009	20	97	-	-	-	-	-	-	-	
	BC 4/2012	20	-	-	-	-	-	-	-	-	
	ON 1/2013	20	-	-	-	-	-	-	-	-	
	QC 12/2012	20	97	-	-	-	-	-	-	-	
propane	US ACGIH 3/2012	1000	-	-	-	-	-	-	-	-	
	AB 4/2009	1000	-	-	-	-	-	-	-	-	
	BC 4/2012	1000	-	-	-	-	-	-	-	-	
	ON 1/2013	1000	-	-	-	-	-	-	-	-	
	QC 12/2012	1000	1800	-	-	-	-	-	-	-	

8. Exposure controls/personal protection

[3]Skin sensitization

Mexico

Occupational exposure limits

Ingredient	Exposure limits
Butane	NOM-010-STPS (Mexico, 9/2000). LMPE-PPT: 800 ppm 8 hours. LMPE-PPT: 1900 mg/m ³ 8 hours.
2-butoxyethanol	NOM-010-STPS (Mexico, 9/2000). Absorbed through skin. LMPE-PPT: 26 ppm 8 hours. LMPE-PPT: 120 mg/m ³ 8 hours. LMPE-CT: 360 mg/m ³ 15 minutes. LMPE-CT: 75 ppm 15 minutes.
propane	ACGIH TLV (United States, 3/2012). TWA: 1000 ppm 8 hours.

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

8. Exposure controls/personal protection

- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Liquid [Aerosol. Clear.]
- Flash point** : Closed cup: -104.4°C (-155.9°F)
- Auto-ignition temperature** : Not available.
- Flammable limits** : Not available.
- Color** : Orange.
- Odor** : Ammoniacal.
- pH** : 9.6 to 10.1
- Boiling/condensation point** : 100°C (212°F)
- Melting/freezing point** : Not available.
- Density** : 1.039 g/cm³
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Volatility** : Not available.
- Evaporation rate** : Not available.
- Viscosity** : Not available.
- Dispersibility properties** : Not available.
- Solubility** : Easily soluble in the following materials: cold water.
- Aerosol product**
- Type of aerosol** : Spray
- Heat of combustion** : 2.491 kJ/g

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame).
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Butane 2-butoxyethanol BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
	LC50 Inhalation Gas.	Rat	450 ppm	4 hours
	LD50 Dermal	Rabbit	220 mg/kg	-
	LD50 Oral	Rat	250 mg/kg	-
	LC50 Inhalation Vapor	Rat	12749 mg/l Estimated.	4 hours
	LD50 Dermal	Rabbit	19590 mg/kg Estimated.	-
	LD50 Oral	Rat	18573 mg/kg Estimated.	-

Conclusion/Summary : Harmful by inhalation.

Chronic toxicity

Conclusion/Summary : Contains material that may cause target organ damage, based on animal data.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
2-butoxyethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

Conclusion/Summary

Skin : May cause skin irritation.

Eyes : Causes eye irritation.

Respiratory : Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

Sensitizer

Conclusion/Summary

Skin : No specific information is available in our database regarding the skin sensitizing properties of this product. Sensitization not suspected for humans.

Respiratory : Sensitization not suspected for humans.

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself. Carcinogenicity not suspected for humans.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-butoxyethanol	A3	3	-	-	-	-

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself. Mutagenicity not suspected for humans.

Teratogenicity

11. Toxicological information

Conclusion/Summary : There are no data available on the mixture itself. Teratogenicity not suspected for humans.

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself. Not considered to be dangerous to humans, according to our database.

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Butane 2-butoxyethanol BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
	LC50 Inhalation Gas.	Rat	450 ppm	4 hours
	LD50 Dermal	Rabbit	220 mg/kg	-
	LD50 Oral	Rat	250 mg/kg	-
	LC50 Inhalation Vapor	Rat	12749 mg/l Estimated.	4 hours
	LD50 Dermal	Rabbit	19590 mg/kg Estimated.	-
LD50 Oral	Rat	18573 mg/kg Estimated.	-	

Conclusion/Summary : Harmful by inhalation.

Chronic toxicity

Conclusion/Summary : Contains material that may cause target organ damage, based on animal data.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
2-butoxyethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

Conclusion/Summary

Skin : May cause skin irritation.

Eyes : Causes eye irritation.

Respiratory : Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

Sensitizer

Conclusion/Summary

Skin : No specific information is available in our database regarding the skin sensitizing properties of this product. Sensitization not suspected for humans.

Respiratory : Sensitization not suspected for humans.

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Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-butoxyethanol	A3	3	-	-	-	-

11. Toxicological information

Mutagenicity

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Teratogenicity

Conclusion/Summary : There are no data available on the mixture itself. Teratogenicity not suspected for humans.

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself. Not considered to be dangerous to humans, according to our database.

Mexico

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Butane 2-butoxyethanol BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
	LC50 Inhalation Gas.	Rat	450 ppm	4 hours
	LD50 Dermal	Rabbit	220 mg/kg	-
	LD50 Oral	Rat	250 mg/kg	-
	LC50 Inhalation Vapor	Rat	12749 mg/l Estimated.	4 hours
	LD50 Dermal	Rabbit	19590 mg/kg Estimated.	-
	LD50 Oral	Rat	18573 mg/kg Estimated.	-

Conclusion/Summary : Harmful by inhalation.

Chronic toxicity

Conclusion/Summary : Contains material that may cause target organ damage, based on animal data.

Irritation/Corrosion

Product/ingredient name	Result	Score	Score	Exposure	Observation
2-butoxyethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

Conclusion/Summary

- Skin** : May cause skin irritation.
- Eyes** : Causes eye irritation.
- Respiratory** : Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

Sensitizer

Conclusion/Summary

- Skin** : No specific information is available in our database regarding the skin sensitizing properties of this product. Sensitization not suspected for humans.
- Respiratory** : Sensitization not suspected for humans.

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself. Carcinogenicity not suspected for humans.

11. Toxicological information

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-butoxyethanol	A3	3	-	-	-	-

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself. Mutagenicity not suspected for humans.

Teratogenicity

Conclusion/Summary : There are no data available on the mixture itself. Teratogenicity not suspected for humans.

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself. Not considered to be dangerous to humans, according to our database.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
2-butoxyethanol BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR	Acute EC50 >1000 mg/l Fresh water Acute LC50 800000 µg/l Marine water Acute LC50 1250000 µg/l Marine water EC50 554.9 mg/l Estimated.	Daphnia - Daphnia magna Crustaceans - Crangon crangon Fish - Menidia beryllina Crustaceans	48 hours 48 hours 96 hours 48 hours
	IC50 16284.5 mg/l Estimated. LC50 1424.8 mg/l Estimated.	Algae Fish	72 hours 96 hours

Conclusion/Summary : There are no data available on the mixture itself.

Persistence/degradability

Conclusion/Summary : This product has not been tested for biodegradation.

Canada

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
2-butoxyethanol BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR	Acute EC50 >1000 mg/l Fresh water Acute LC50 800000 µg/l Marine water Acute LC50 1250000 µg/l Marine water EC50 554.9 mg/l Estimated.	Daphnia - Daphnia magna Crustaceans - Crangon crangon Fish - Menidia beryllina Crustaceans	48 hours 48 hours 96 hours 48 hours
	IC50 16284.5 mg/l Estimated. LC50 1424.8 mg/l Estimated.	Algae Fish	72 hours 96 hours

Conclusion/Summary : There are no data available on the mixture itself.

Persistence/degradability

Conclusion/Summary : This product has not been tested for biodegradation.

Mexico

12. Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
2-butoxyethanol BULLDOG BATTERY TERMINAL CLEANER and PROTECTOR	Acute EC50 >1000 mg/l Fresh water Acute LC50 800000 µg/l Marine water Acute LC50 1250000 µg/l Marine water EC50 554.9 mg/l Estimated.	Daphnia - Daphnia magna Crustaceans - Crangon crangon Fish - Menidia beryllina Crustaceans	48 hours 48 hours 96 hours 48 hours
	IC50 16284.5 mg/l Estimated. LC50 1424.8 mg/l Estimated.	Algae Fish	72 hours 96 hours

Conclusion/Summary : There are no data available on the mixture itself.

Persistence/degradability

Conclusion/Summary : This product has not been tested for biodegradation.

13. Disposal considerations


Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

RCRA classification : D001






Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1950	Aerosols	2.1	-		Packaging instruction Passenger aircraft Quantity limitation: 75 kg Cargo aircraft Quantity limitation: 150 kg Special provisions N82

14. Transport information

TDG Classification	UN1950	AEROSOLS	2.1	-		<u>Explosive Limit and Limited Quantity Index</u> 1 <u>Passenger Carrying Road or Rail Index</u> 75
Mexico Classification	UN1950	AEROSOLS	2.1	-		<u>Special provisions</u> 63, 190, 277, 327, 344
ADR/RID Class	UN1950	AEROSOLS	2	-		<u>Limited quantity</u> 1 L <u>Special provisions</u> 190, 327, 625, 344 <u>Tunnel code</u> (D)
IMDG Class	UN1950	AEROSOLS	2.1	-		<u>Emergency schedules (EmS)</u> F-D, S-U <u>Special provisions</u> 63, 190, 277, 327, 344, 959
IATA-DGR Class	UN1950	Aerosols, flammable	2.1	-		<u>Passenger and Cargo Aircraft</u> Quantity limitation: 75 kg Packaging instructions: 203 <u>Cargo Aircraft Only</u> Quantity limitation: 150 kg Packaging instructions: 203 <u>Limited Quantities - Passenger Aircraft</u> Quantity limitation: 30 kg Packaging instructions: Y203 <u>Special provisions</u> A145, A167, A802

PG* : Packing group

15. Regulatory information

United States

- HCS Classification** : Flammable aerosol
Toxic material
Irritating material
Target organ effects
- U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Commerce control list precursor: 2,2',2"-nitrioltriethanol
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304: No products were found.
SARA 311/312 Hazards identification: Fire hazard, Sudden release of pressure, Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 311: ammonia; Formaldehyde
Clean Air Act (CAA) 112 regulated flammable substances: Butane; propane
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed
- Clean Air Act Section 602 Class I Substances** : Not listed
- Clean Air Act Section 602 Class II Substances** : Not listed
- DEA List I Chemicals (Precursor Chemicals)** : Not listed
- DEA List II Chemicals (Essential Chemicals)** : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	: 2-butoxyethanol	111-76-2	1-5
Supplier notification	: 2-butoxyethanol	111-76-2	1-5

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

- Connecticut Carcinogen Reporting** : None of the components are listed.
- Connecticut Hazardous Material Survey** : None of the components are listed.
- Florida substances** : None of the components are listed.
- Illinois Chemical Safety Act** : None of the components are listed.
- Illinois Toxic Substances Disclosure to Employee Act** : None of the components are listed.
- Louisiana Reporting** : None of the components are listed.
- Louisiana Spill** : None of the components are listed.
- Massachusetts Spill** : None of the components are listed.
- Massachusetts Substances** : The following components are listed: BUTANE; 2-BUTOXYETHANOL; PROPANE

15. Regulatory information

Michigan Critical Material	: None of the components are listed.
Minnesota Hazardous Substances	: None of the components are listed.
New Jersey Spill	: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act	: None of the components are listed.
New Jersey Hazardous Substances	: The following components are listed: BUTANE; 2-BUTOXY ETHANOL; BUTYL CELLOSOLVE; PROPANE
New York Acutely Hazardous Substances	: None of the components are listed.
New York Toxic Chemical Release Reporting	: None of the components are listed.
Pennsylvania RTK Hazardous Substances	: The following components are listed: BUTANE; ETHANOL, 2-BUTOXY-; PROPANE
Rhode Island Hazardous Substances	: None of the components are listed.

California Prop. 65

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Formaldehyde	Yes.	No.	Yes.	No.

United States inventory (TSCA 8b) : All components are listed or exempted.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class B-5: Flammable aerosol.
Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

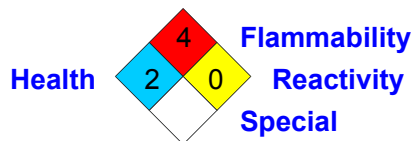
Canadian lists

Canadian NPRI : The following components are listed: Butane (all isomers); 2-Butoxyethanol; Propane
CEPA Toxic substances : The following components are listed: 2-butoxyethanol
Canada inventory; DSL/ NDSL : At least one component is not listed.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Mexico

Classification :



International regulations

International lists : **Australia inventory (AICS)**: At least one component is not listed.
China inventory (IECSC): At least one component is not listed.
Japan inventory: At least one component is not listed.
Korea inventory: At least one component is not listed.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): At least one component is not listed.
Philippines inventory (PICCS): At least one component is not listed.

15. Regulatory information

Taiwan inventory (CSNN): Not determined.

Europe inventory : At least one component is not listed.

Chemical Weapons : Not listed

Convention List Schedule
I Chemicals

Chemical Weapons : Not listed

Convention List Schedule
II Chemicals

Chemical Weapons : Not listed

Convention List Schedule
III Chemicals

16. Other information

Label requirements : EXTREMELY FLAMMABLE AEROSOL. HARMFUL IF INHALED. CAUSES EYE IRRITATION. MAY CAUSE SKIN IRRITATION.

Hazardous Material
Information System (U.S.A.) :

Health	*	2
Flammability		4
Physical hazards		0
		B

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection
Association (U.S.A.) :



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of issue : 10/3/2013.

Date of previous issue : No previous validation.

Version : 1

16. Other information

Prepared by : Regulatory Department, Chemtool Inc.

✔ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.