DOW CHEMICAL COMPANY LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Identification of the substance/preparation and of the company/undertaking

Product Name
GREAT STUFF™ Pro Gun Cleaner EU N

Use of the substance/preparation
Cleaner.

COMPANY IDENTIFICATION
DOW CHEMICAL COMPANY LIMITED
DIAMOND HOUSE, LOTUS PARK,
KINGSBURY CRESCENT,
STAINES
England
TW18 3AG
UNITED KINGDOM

Customer Information Number: 0203 139 4000
SDSQuestion@dow.com

For questions about this SDS, contact: SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 0031 115 694 982
Local Emergency Contact: 00 31 115 69 4982

2. Hazards Identification

Extremely flammable.
Irritating to eyes.
Repeated exposure may cause skin dryness or cracking.
Vapours may cause drowsiness and dizziness.

3. Composition/information on ingredients

Component	Amount	Classification:	CAS #	EC #
Propan-2-ol; isopropyl alcohol; isopropanol	>= 20.0 - <= 30.0 %	F: R11; Xi: R36; R67	67-63-0	200-661-7
Acetone; propanone	>= 40.0 - <= 50.0 %	F: R11; Xi: R36; R66; R67	67-64-1	200-662-2
Isobutane	>= 10.0 - <= 20.0 %	F+: R12	75-28-5	200-857-2
Propane	>= 1.0 - <= 10.0 %	F+: R12	74-98-6	200-827-9

See Section 16 for full text of R-phrases.

4. First-aid measures

Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Skin Contact: Wash skin with plenty of water.
Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.
Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. Hemodialysis may be of benefit if substantial amounts have been ingested and the patient is showing signs of intoxication. Consider hemodialysis for patients with persistent hypotension or coma unresponsive to standard therapy (isopropanol levels >400 - 500 mg/dl). (Goldfrank 1998, King et al, 1970). If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Exposure may increase “myocardial irritability”. Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
Medical Conditions Aggravated by Exposure: Skin contact may aggravate preexisting dermatitis.
Emergency Personnel Protection: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. 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. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Warning - flashback potential.
Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Fire and Explosion Hazards: Contains flammable propellant. Aerosol cans exposed to fire can rupture and become flaming projectiles. Propellant release may result in a fireball. Flammable mixtures of this product are readily ignited even by static discharge. Vaporizes quickly at room temperature.
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: Carbon monoxide. Carbon dioxide.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Absorb with materials such as: Dirt. Sand. Sawdust. Collect in suitable and properly labeled containers. Wash the spill site with water. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.
Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. Refer to Section 7, Handling, for additional precautionary measures. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. Confined space entry procedures must be followed before entering the area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling
General Handling: Avoid contact with eyes. Wash thoroughly after handling. Keep container closed. This material is hygroscopic in nature. Do not swallow. Use only with adequate ventilation. Avoid breathing vapor. No smoking, open flames or sources of ignition in handling and storage area. Contents under pressure. Do not puncture or incinerate container. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Do not enter confined spaces unless adequately ventilated. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Storage
Protect from atmospheric moisture. Store in a dry place. Avoid prolonged exposure to heat and air.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Propan-2-ol; isopropyl alcohol; isopropanol	UK WEL	TWA	999 mg/m3 400 ppm
	UK WEL	STEL	1,250 mg/m3 500 ppm
	ACGIH	TWA	200 ppm
	ACGIH	STEL	400 ppm
	Ireland OELV	TWA	200 ppm SKIN
	Ireland OELV	STEL	400 ppm SKIN
Acetone; propanone	Ireland OELV	TWA	1,210 mg/m3 500 ppm Indicative OELV
	ACGIH	TWA	500 ppm BEI

	ACGIH	STEL	750 ppm BEI
	EU IOELV	TWA	1,210 mg/m3 500 ppm
	UK WEL	TWA	1,210 mg/m3 500 ppm
	UK WEL	STEL	3,620 mg/m3 1,500 ppm
Isobutane	ACGIH	TWA	1,000 ppm
Propane	ACGIH	TWA	1,000 ppm
	UK WEL	Asphyxiant	Included in the regulation but with no data values. See regulation for further details

A BEI notation following the exposure guideline refers to a guidance value for assessing biological monitoring results as an indicator of the uptake of a substance from all routes of exposures.
A “skin” notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.
It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Personal Protection

Eye/Face Protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator.
Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber (“latex”). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate (“EVAL”). Examples of acceptable glove barrier materials include: Chlorinated polyethylene. Nitrile/butadiene rubber (“nitrile” or “NBR”). Polyvinyl alcohol (“PVA”). Polyvinyl chloride (“PVC” or “vinyl”). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.
Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

9. Physical and Chemical Properties

Physical State	Liquid.
Color	Colorless
Odor	Characteristic

Odor Threshold	No test data available
Flash Point - Closed Cup	-20 °C *Closed Cup* Acetone
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	**Lower**: 1.4 %(V) *Supplier* **Upper**: 13 %(V) *Supplier*
Autoignition Temperature	> 230 °C *Supplier*
Vapor Pressure	2.500 - 2.900 hPa *Supplier*
Boiling Point (760 mmHg)	56.2 °CAcetone.
Vapor Density (air = 1)	No test data available
Specific Gravity (H2O = 1)	0.74 - 0.76 *Supplier*
Freezing Point	No test data available
Melting Point	No test data available
Solubility in water (by weight)	Partially soluble
pH	Not applicable
Decomposition Temperature	No test data available
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Evaporation Rate (Butyl Acetate = 1)	No test data available
Kinematic Viscosity	No test data available

10. Stability and Reactivity

Stability/Instability
Stable under recommended storage conditions. See Storage, Section 7.
Conditions to Avoid: Avoid temperatures above 50 °C. Elevated temperatures can cause container to vent and/or rupture. Avoid static discharge.

Incompatible Materials: Avoid contact with: Acids. Bases. Oxidizers.

Hazardous Polymerization
Will not occur.

Thermal Decomposition
Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity
Ingestion
Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. May cause central nervous system depression. May cause nausea and vomiting. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats.
As product. Single dose oral LD50 has not been determined.
Based on information for component(s): Isopropyl alcohol. Lethal Dose, Human, adult 100 ml
Aspiration hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.
Dermal
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
The dermal LD50 has not been determined.
Inhalation

Vapor concentrations are attainable which could be hazardous on single exposure. In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. May cause central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). In humans, symptoms may include: Nausea and/or vomiting. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels.
As product. The LC50 has not been determined.

Eye damage/eye irritation
May cause severe eye irritation. May cause moderate corneal injury. May cause pain disproportionate to the level of irritation to eye tissues. Vapor may cause eye irritation experienced as mild discomfort and redness. Vapor may cause lacrimation (tears).

Skin corrosion/irritation
Essentially nonirritating to skin. May cause drying and flaking of the skin.

Sensitization
Skin
No relevant information found.
Respiratory
No relevant information found.

Repeated Dose Toxicity
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Contains component(s) which have been reported to cause effects on the following organs in animals: Blood. Kidney. Liver. Respiratory tract. Development of cataracts has been reported in laboratory animals after prolonged repeated skin exposure to acetone.

Chronic Toxicity and Carcinogenicity
No relevant information found.

Developmental Toxicity
Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother.

Reproductive Toxicity
No relevant information found.

Genetic Toxicology
Genetic toxicity studies on tested components were predominantly negative. Genetic toxicity studies in animals were negative for component(s) tested.

12. Ecological Information

ENVIRONMENTAL FATE
Data for Component: **Propan-2-ol; isopropyl alcohol; isopropanol**

Movement & Partitioning
Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
Henry's Law Constant (H): 3.38E-06 - 8.07E-06 atm*m3/mole; 25 °C Estimated.
Partition coefficient, n-octanol/water (log Pow): 0.05 Measured
Partition coefficient, soil organic carbon/water (Koc): 1.1 Estimated.

Persistence and Degradability
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
95 %	21 d	OECD 301E Test

Data for Component: **Acetone; propanone**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
Henry's Law Constant (H): 1.38E-05 atm*m3/mole; 25 °C Estimated.
Partition coefficient, n-octanol/water (log Pow): -0.24 Measured
Partition coefficient, soil organic carbon/water (Koc): 0.37 - 2.0 Estimated.

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
91 %	28 d	OECD 301B Test

Data for Component: **Isobutane**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
Henry's Law Constant (H): 1.19E+00 atm*m3/mole; 25 °C Measured
Partition coefficient, n-octanol/water (log Pow): 2.76 Measured
Partition coefficient, soil organic carbon/water (Koc): 35 Estimated.

Persistence and Degradability

Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Data for Component: **Propane**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
Henry's Law Constant (H): 7.07E-01 atm*m3/mole; 25 °C Measured
Partition coefficient, n-octanol/water (log Pow): 2.36 Measured
Partition coefficient, soil organic carbon/water (Koc): 24 - 460 Estimated.

Persistence and Degradability

No relevant information found.

ECOTOXICITY

Data for Component: **Propan-2-ol; isopropyl alcohol; isopropanol**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity
LC50, fathead minnow (Pimephales promelas), flow-through, 96 h: 9,640 - 10,400 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, 48 h, immobilization: 7,550 - 13,299 mg/l
Aquatic Plant Toxicity
EC50, alga Scenedesmus sp., Growth rate inhibition, 72 h: > 1,000 mg/l
Toxicity to Micro-organisms
EC50; activated sludge: > 1,000 mg/l

Data for Component: **Acetone; propanone**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity
LC50, rainbow trout (Oncorhynchus mykiss), 96 h: 5,500 - 6,100 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, water flea Daphnia magna, 48 h, immobilization: 6,084 mg/l
Aquatic Plant Toxicity
EC50, diatom Skeletonema costatum, biomass growth inhibition, 5 d: 11,800 - 14,400 mg/l

Data for Component: **Isobutane**

Material is not classified as dangerous to aquatic organisms.

Data for Component: **Propane**

No relevant information found.

13. Disposal Considerations

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

14. Transport Information

ROAD & RAIL
Proper Shipping Name: AEROSOLS, FLAMMABLE
Hazard Class: 2.1 **ID Number:** UN1950

Classification: 5F
Environmental Hazard: No

OCEAN
Proper Shipping Name: AEROSOLS, FLAMMABLE
Hazard Class: 2.1 **ID Number:** UN1950
EMS Number: F-D,S-U
Marine pollutant.: No

AIR
Proper Shipping Name: AEROSOLS, FLAMMABLE
Hazard Class: 2.1 **ID Number:** UN1950**Cargo Packing Instruction:** 203
Passenger Packing Instruction: 203
Environmental Hazard: No

INLAND WATERWAYS
Proper Shipping Name: AEROSOLS, FLAMMABLE
Hazard Class: 2.1 **ID Number:** UN1950
Classification: 5F
Environmental Hazard: No

15. Regulatory Information

European Inventory of Existing Commercial Chemical Substances (EINECS)
The components of this product are on the EINECS inventory or are exempt from inventory requirements.

EC Classification and User Label Information
Hazard Symbol:
F+ **-** Extremely flammable.
Risk Phrases :

R12 **-** Extremely flammable.
R36 **-** Irritating to eyes.
R66 **-** Repeated exposure may cause skin dryness or cracking.
R67 **-** Vapours may cause drowsiness and dizziness.
Safety Phrases :
S43 **-** In case of fire, use water fog, foam, dry powder, carbon dioxide.
S23 **-** Do not breathe vapour/gas/fumes/spray.
S24/25 **-** Avoid contact with skin and eyes.
S2 **-** Keep out of the reach of children.
S16 **-** Keep away from sources of ignition - no smoking.
S51 **-** Use only in well-ventilated areas.
Contains: Propan-2-ol; isopropyl alcohol; isopropanol
Acetone; propanone

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 ºC.
Do not pierce or burn, even after use.
Do not spray on a naked flame or any incandescent material.

16. Other Information

Risk-phrases in the Composition section

R11	Highly flammable.
R12	Extremely flammable.
R36	Irritating to eyes.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.
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