



Blue Shower® II

General Purpose Degreaser

1667

Introduction

Modeled after Techspray's popular Blue Shower® 1657, Blue Shower® II was developed for general cleaning and degreasing. Non-flammable and safe on plastics, Blue Shower® II is the standard for precision cleaning of polar and non-polar soils, including hand oils, solder oils, greases, silicone, fluxes, and similar soils. Excellent for tape head cleaning and general degreasing.

Features / Benefits

- Non-Flammable
- Rapidly Evaporating
- Safe on Most Plastics
- Zero Residue
- Low Ozone Depletion Potential
- Non-Corrosive
- Replacement for CFC-113
- Replacement for HCFC-141b
- EPA SNAP Approved

Physical Properties

Boiling Point	58°C / 136°F
Flash Point (TCC)	None
Evaporation Rate	>1
Surface Tension	0.52 (TCE=1)
Kauri-Butanol (KB Value)	40

Chemical Components

3,3-Dichloro-1,1,1,2,2-pentafluoropropane.... (422-56-0)	32-37%-Aerosol 40-45%-Bulk
1,3-Dichloro-1,1,2,2,3-pentafluoropropane.... (507-55-1)	37-45%-Aerosol 48-55%-Bulk
Methanol.....(67-56-1)	.5-2%-Aerosol 1-2%-Bulk
Ethanol.....(64-17-5)	5-7%-Aerosol 7-8%-Bulk
Nitromethane.....(75-52-5)	< .5%
Aerosol-1,1,1,2-Tetrafluoroethane..... (811-97-2)	18-22%
Carbon Dioxide (Aerosol Propellant)..... (124-38-9)	1-3%

Plastic Compatibility

Material	Compatibility	Material	Compatibility
ABS	Not Compatible	PMMA	Not Compatible
Nylon	Excellent	POM	Excellent
Lexan	Not Compatible	PP	Excellent
HDPE	Excellent	PS	Excellent
LDPE	Excellent	PTFE	Good
C. E. Phenolic	Excellent	PVC	*

*Not recommended for stressed PVC-R or PVC-P

Environmental Policy

Techspray® is committed to developing products to ensure a safer and cleaner environment. We will continue to meet and sustain the regulations of all federal, state and local government agencies.

Packaging and Availability

Blue Shower® II may be ordered in the following container sizes:

1667-8S	8 Ounce Aerosol
1667-18S	18 Ounce Aerosol
1667-5G	50 Pounds in Metal

MATERIAL SAFETY DATA SHEET

Finished Product

MSDS Ref. No: 1667-A

Blue Shower II

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Blue Shower II**GENERAL USE:** General Purpose Cleaner/Degreaser**PRODUCT DESCRIPTION:** General Purposes Cleaner**PRODUCT CODE:** 1667/CAN/EUR-8S, 18S

MANUFACTURER

Techspray, L.P.

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Wt.%</u>	<u>CAS#</u>	<u>EINECS#</u>
3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	60 - 70	422-56-0	2070169
1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	<5	507-55-1	2080769
1,1,1,2-Tetrafluoroethane (HFC-134a)	15 - 25	811-97-2	223770
Carbon dioxide	2 - 5	124-38-9	
Ethanol	7 - 15	64-17-5	200-578-6

EEC LABEL SYMBOL AND CLASSIFICATION

convulsing person. Immediately contact a poison control center, emergency room or physician as further treatment may be necessary.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: None

FLAMMABLE LIMITS: NA to NA

EXTINGUISHING MEDIA: Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

FIRE FIGHTING PROCEDURES: Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

FIRE FIGHTING EQUIPMENT: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

HAZARDOUS DECOMPOSITION PRODUCTS: Toxic oxides of carbon and corrosive vapors of hydrogen chloride.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Contain spill with dike to prevent entry into sewers.

LARGE SPILL: If this material is released into a work area, evacuate the area immediately.

GENERAL PROCEDURES: Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on adsorbent, such as sawdust or vermiculite, and sweep into closed containers for disposal. After all visible traces, including vapors, have been removed thoroughly wet vacuum the area. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth, gravel, etc. as necessary and place in closed containers for disposal.

SPECIAL PROTECTIVE EQUIPMENT: Only personnel equipped with proper respiratory and skin/eye protection should be permitted in area. See Section 8 for details.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Use only in a well ventilated area.

HANDLING: Use with sufficient ventilation to keep employee exposure below recommended limits. Provide adequate ventilation for storage, handling and use, especially for enclosed or low spaces. Avoid contact of liquid with eyes and prolonged skin exposure. Do not allow product to contact open flame or electrical heating elements because dangerous decomposition products may form.

STORAGE: Store in a cool, well-ventilated area of low fire risk. Storage in subsurface locations should be avoided. If container temperature exceeds boiling point, cool the container before opening.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

		<u>EXPOSURE LIMITS</u>					
		<u>OSHA PEL</u>		<u>ACGIH TLV</u>		<u>Supplier OEL</u>	
		<u>ppm</u>	<u>mg/m³</u>	<u>ppm</u>	<u>mg/m³</u>	<u>ppm</u>	<u>mg/m³</u>
3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	TWA					50* ^[1]	
	STEL			[2]			
1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	TWA					400*	
1,1,1,2-Tetrafluoroethane (HFC-134a)	TWA	NE		NE		1,000	
Ethanol	TWA	1000	1900	1000	1880	NL	NL
	STEL	NL	NL	NL	NL	NL	NL

OSHA TABLE COMMENTS:

- * (AEL)=Acceptable Exposure Limit as established by the manufacture
- NOT ESTABLISHED

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

SKIN: The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection.

Viton, Solvex, Butyl, Buna, Neoprene.

RESPIRATORY: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

OTHER USE PRECAUTIONS: Emergency shower and eyewash facility should be in close proximity.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Faint ethereal odor

APPEARANCE: Clear, Colorless liquid

PERCENT VOLATILE: 100 at 20°C (68°F)

VAPOR DENSITY: 7.0 (Air=1)

BOILING POINT: to 54°C (129°F)

SOLUBILITY IN WATER: Insoluble

EVAPORATION RATE: >1 (n-Butyl Acetate=1)

(VOC): 125 to 135 g/L (non-exempt VOC)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Stable. However, may decompose if heated.

STABILITY: Stable.

POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: May form hydrochloric and hydrofluoric acids - possibly carbonyl halides, when exposed to high temperatures.

INCOMPATIBLE MATERIALS: Oxidizing agents, alkalies and bases.

11. TOXICOLOGICAL INFORMATION

ACUTE

EYES: Moderately to severely irritating

DERMAL LD₅₀: Mildly to moderately irritating.

ORAL LD₅₀: Slight to very low toxicity.

INHALATION LC₅₀: Slight to very low toxicity.

TERATOGENIC EFFECTS: Test results indicate this compound/mixture is not teratogenic.

GENERAL COMMENTS: Data from acute toxicity studies indicate that HCFC-225ca and HCFC-225cb have very low acute toxicity. Neither isomer causes eye irritation nor dermal toxicity in standardized tests; skin application of both isomers at high doses (2,000 mg/kg body weight) produces no adverse effects. Therefore, the dermal LD50s are greater than 2,000 mg/kg body weight. Oral administration of either isomer at high doses (5,000 mg/kg body weight) does not cause any mortality and the oral LD50s are greater than 5,000 mg/kg body weight. Both isomers also have very low acute inhalation toxicity as measured by the concentration that cause 50% mortality in experimental animals.

In 28-day inhalation studies with rat, the activity and responsiveness of the animals was reduced at 5,000 ppm or greater for each isomer. Toxicity was otherwise confined to the liver; liver enlargement and induction of peroxisomes was seen following treatment with either of the isomers. HCFC-225ca was more potent than HCFC-225cb in eliciting these liver effects. In a 90-day study of HCFC-225ca/HCFC-225cb mixture (45/55%) with rat, toxic effects were observed in the liver; liver enlargement and induction of peroxisomes. In a 28-day study with marmoset, exposure to HCFC-225ca at 1,000 ppm caused effects on the liver, such as slight fat deposition associated with changes in serum biochemical parameters. In the same study, exposure to HCFC-225cb at 5,000 ppm caused somnolence during exposure and an increase of cytochrome P-450, indicative of an adaptive response to HCFC-225cb. However, no liver enlargement was seen and virtually no peroxisome induction was observed in either isomer.

CERCLA REGULATORY: Releases to air, land, or water which exceed the RQ must be reported to the National Response Center [(800)424-8802] and to your Local Emergency Planning Committee.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: This product is listed on the TSCA Inventory.

CANADA

WHMIS (WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS CLASS: Class D2B - Toxic Materials

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION



R20 - Harmful by inhalation.

EEC Harmful - "Xn"

R36/38 - Irritating to eyes and skin.

CALIFORNIA PROPOSITION 65: This product does not contain any chemicals known to the State of California to cause cancer.

COMMENTS: WARNING: Contains 1,1,1,2-tetrafluoroethane (HFC-134a), a greenhouse gas which may contribute to global warming.

16. OTHER INFORMATION

APPROVED BY: Pierce A. Pillon **TITLE:** Chemist

PREPARED BY: Steve Cook

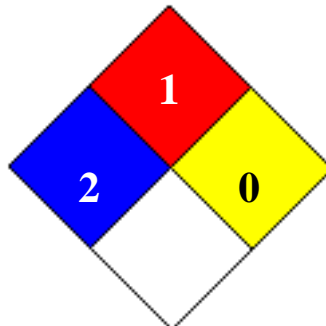
REVISION SUMMARY Revision #: 2

This MSDS replaces the December 12, 2003 MSDS. Any changes in information are as follows:

HMIS RATING

HEALTH:		2
FLAMMABILITY:		1
PHYSICAL HAZARD:		0
PERSONAL PROTECTION:		

NFPA CODES



DATA SOURCES: Code of Federal Regulations (CFR)