Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Section 1	**CHEMICAL PRODUCT SECTION**

Identification: Product Name: Turbo Blast Duster
Product Number: 8640

Product description: trans-1,3,3,3-Tetrafluoroprop-1-ene
Product type: Aerosol Duster (follow label instructions)
Application: Industrial applications, professional applications

Manufacturer:
ACL Incorporated
840 W 49th Place
Chicago, Il 60609
PH: (01) 847.981.9212 [U.S.A.]
FAX: (01) 847.981.9278 [U.S.A.]

Emergency telephone: INFOTRAC: (01) 800.535.5053 (day or night)

Section 2	**HAZARDOUS IDENTIFICATION**

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS] & (US) OSHA HCS/HazCom 2012:

2.1 Classification of the substance or mixture

Product definition: GASES UNDER PRESSURE - Liquefied gas
Percentage of mixture consisting of ingredients of unknown toxicity: < 1%

GHS-US classification
Aerosols: Cat 3

Label Elements

Hazard Pictograms:

Signal Word: Warning

Hazard Statement:
H280: Contains gas under pressure; may explode if heated.

Precautionary Statements Prevention:
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P103 - Read label before use.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251: Do not pierce or burn, even after use.

Precautionary Statements Response:
If exposed or concerned: Get medical advice/attention

Precautionary Statements – Storage: P410+P403+P412: Protect from sunlight. Store in a well-ventilated place. Do not expose to temperatures exceeding 50°C / 122°F

Precautionary Statements – Disposal: P251: Do not pierce or burn, even after use

Other hazards not otherwise classified: Rapid evaporation of the liquid may cause frostbite. Vapors are heavier than air and can cause suffocation by reducing available oxygen. May cause cardiacarrhythmia. Misuse or intentional inhalation can be fatal as a result of effects on the heart, without alarming symptoms.

Section 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substance/mixture: Substance

CHEMICAL	C.A.S.	Weight %	GHS Classification
trans-1,3,3,3-Tetrafluoroprop-1-ene	29118-24-9	100 %	Press. Gas Compr. Gas; H280

Section 4 FIRST AID MEASURES

4.1.1 General Information:

***4.1.2 Inhalation*:** Remove to fresh air. Artificial respiration and/or oxygen may be necessary. Consult a physician.

***4.1.3 Skin*:** For liquid contact, warm areas gradually and get medical attention if there is evidence of frost bite or tissue damage. Flush area with lukewarm water. Do not rub affected area. If blistering occurs, apply a sterile dressing. Seek medical attention.

4.1.4 Eyes: For liquid contact, rrigate with running water for minimum of 15 minutes. Seek medical attention.

***4.1.5 Ingestion*:** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

***4.1.6 Self-protection of the first aider*:** 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.

Most important symptoms/effects, acute and delayed
Potential acute health effects: Anesthetic effects at high concentrations.

Over-exposure signs/symptoms: None known or anticipated. See Section 11 for information on effects from chronic exposure, if any.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Section 5 FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water Mist, Dry Powder, Foam, Carbon Dioxide.

Unsuitable extinguishing media: Not determined

5.2 Special hazards arising from the substance or mixture
Hazards from the substance or mixture: If container is not properly cooled, it can rupture in the heat of a fire. Drains can be plugged and valves made inoperable by the formation of ice if rapid evaporation of large quantities of the liquefied gas occurs.

Hazardous thermal decomposition products: Hazardous decomposition products may include: Hydrogen Fluoride, Carbonyl fluoride. Carbon Oxides. Some risk may be expected of corrosive and toxic decomposition products. Fire may cause evolution of: Hydrogen fluoride

5.3 Advice for firefighters
Special protective actions for fire-fighters: Cool containers/ tanks with water spray. Product is not combustible under normal conditions. However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources. Do not allow run-off from
fire fighting to enter drains or water courses. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Special protective equipment for fire-fighters: Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.

Section 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
For non-emergency personnel: Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

For emergency responders: Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Keep upwind of leak –evacuate until gas has dispersed.

6.2 Environmental precautions Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

6.3 Methods and materials for containment and cleaning up
Small and large spill: Ventilate area using forced ventilation, especially low or enclosed places where heavy vapors might collect. Notify relevant authorities in accordance with all applicable regulations.

6.4 Reference to other sections
See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

Section 7 HANDLING AND STORAGE

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Comply with state and local regulations. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Wash hands thoroughly after handling. Wash clothing after use. Decomposition will occur when product comes in contact with open flame or electrical heating elements. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Contents are under pressure. Gases can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146.

7.2 Conditions for safe storage, including any incompatibilities:
Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well ventilated areas away from heat, direct sunlight. Store only in approved containers. Protect container(s) against physical damage. "Empty" containers retain residue and may be dangerous.

7.3 Specific end use(s)
Recommendations: To remove dust buildup from circuit boards, cleaning insulating debris from pin connectors, removal of entrapped solvent from under surface mount devices.
Industrial sector specific solutions: Filtered to 0.2 microns

Section 8 EXPOSURE CONTROL / PERSONAL PROTECTION

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters
Occupational exposure limits

Occupational exposure limits

ingredient name	OSHA TWA	ACGIH TLV	NIOSH TWA	Other PEL
trans-1,3,3,3-Tetrafluoroprop-1-ene	No data	No data	No data	800 ppm Honeywell AEL

Recommended monitoring procedures
DNELs/DMELs: No DNELs/DMELs available.
PNECs: No PNECs available

8.2 Exposure controls
8.2.1 Appropriate engineering controls: Use only with adequate ventilation. Keep container tightly closed.

8.2.2 Personal protective equipment Gloves. Safety glasses. Avoid all unnecessary exposure

8.2.2.1 Eye/face protection: Safety glasses. The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

8.2.2.2 Skin protection
***Hand protection*:** Insulated gloves.
***Body protection*:** Protective clothing.

***Other skin protection*:** Impervious, insulated gloves recommended.

8.2.2.3 Respiratory protection Wear NIOSH approved respiratory protection as appropriate.

8.2.2.4 Thermal hazards: Not determined
Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

In case of large spill: Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless gas [Liquefied compressed gas]

Odor	Faint ethereal odor
pH	Not applicable
Melting point/freezing point	No Data
Initial boiling point and boiling range	-19 °C
Flash point and method	None per ASTM E681
Evaporation rate (Ethyl Ether= 1.0)	> 1
Flammability (solid, gas, liquid)	Not flammable
Upper/lower flammability or explosive limits	Upper: None< 28°C Lower: None< 28°C
Vapor pressure @70°F	49 PSIG
Vapor density (air=1)	3.9
Water solubility @70°F	0.0373%
Autoignition temperature	368°C
Decomposition temperature	Not available
Kinematic Viscosity	Not available
Dynamic viscosity	Not available
Explosive properties	Not available
Log Pow	No data
Log Kow	No data
VOC	0% CARB (See section 15)

Section 10 STABILITY AND REACTIVITY

10.1 Reactivity: Does not occur
10.2 Chemical stability: The product is stable.
10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid: Keep away from heat, direct sunlight, open flames, sparks, or sources of ignition. When pressurized with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions. To avoid thermal decomposition, do not overheat.
10.5 Incompatible Materials: Alkali or Alkaline Earth Metals. Powdered Metal. Powdered Metal Salts.
10.6 Hazardous decomposition products: Carbon oxides, Hydrogen fluoride, Carbonyl fluoride, Fluorocarbons.
Hazardous polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11 TOXICOLOGY INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
trans-1,3,3,3-Tetrafluoroprop-1-ene	LC50 Inhalation No lethality	Rat Mouse	207,000 ppm >100,000 ppm	4 hours 4 hours

Skin corrosion / irritation: No skin irritation (rabbit) Method OECD Test Guideline 404.
Serious eye damage / irritation: Not classified
Respiratory or skin sensitization: Cardiac sensitization (dogs). Did not cause sensitization on laboratory animals.
Mutagenicity: Not expected to cause heritable genetic effects.

Test Method	Cell Type	Results	Species	Route
Chromosome aberration test in vitro	Human lymphocytes	Negative	----	---
Ames test	---	Negative	---	---
in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)	Micronucleus	Negative	Mouse	Inhalation

Carcinogenicity: Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.
Reproductive toxicity: Not expected to cause reproductive toxicity.
Teratogenicity: Did not show effects in animal experiments (rabbit, rat), Method Prenatal Inhalation Toxicity Study.

Specific target organ toxicity (single exposure): Not expected to cause organ effects from single exposure.
Specific target organ toxicity (repeated exposure): Not expected to cause organ effects from single exposure.
Aspiration hazard: Yes
Information on the likely routes of exposure: Not available.

Potential acute health effects
Eye contact: Liquid can cause severe irritation, redness, tearing, blurred vision, and possible freeze burns.
Inhalation : Inhalation of vapor may produce anesthetic effects and feeling of euphoria. Prolonged overexposure can cause rapid breathing, headache, dizziness, narcosis, unconsciousness, and death from asphyxiation, depending on concentration and time of exposure.
Skin contact : Contact with evaporating liquid can cause frostbite.
Ingestion : Aspiration hazard!

Symptoms related to the physical, chemical and toxicological characteristics
Eye contact: Liquid can cause severe irritation, redness, tearing, blurred vision, and possible freeze burns.
Inhalation : Inhalation of vapor may produce anesthetic effects and feeling of euphoria.
Prolonged overexposure can cause rapid breathing, headache, dizziness, narcosis, unconsciousness, and death from asphyxiation, depending on concentration and time of exposure.
Skin contact : Adverse symptoms may include the following: frostbite.
Ingestion : Aspiration hazard! Adverse symptoms may include the following: frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure
Short term exposure: Not expected to cause organ effects from single exposure.
Long term exposure: Not expected to cause organ effects from single exposure.

Potential chronic health effects*:* Not available.

Other information: Excessive exposure may cause central nervous system effects including drowsiness and dizziness. Excessive exposure may also cause cardiac arrhythmia. Rapid evapouration of the liquid may cause frostbite

Section 12 ECOLOGICAL INFORMATION

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
trans-1,3,3,3-Tetrafluoroprop-1-ene	NOEC: > 117 mg/I	Cyprinus carpio (Carp)	96 h
	ECS0: > 160 mg/I	Daphnia magna (Water flea)	48 h
	NOEC: > 117 mg/I	Algae	72 h

Conclusion/Summary : No environmental hazard.

12.2 Persistence and degradability
Aerobic Result: Not readily biodegradable. Further information on ecology
Additional ecological Information: no data available

12.3 Bioaccumulative potential: Not expected as having the potential to bioaccumulate.

12.4 Mobility in soil: Due to the extreme volatility of liquefied gases, air is the only environmental compartment in which they will be found.
PBT: Not available.
Soil/water partition coefficient (KOC): Not available.
Mobility: Not available.

12.5 Results of PBT and vPvB assessment:
vPvB: Not available.

12.6 Other adverse effects: None anticipated. Low GWP 6

Section 13 DISPOSAL CONSIDERATIONS

Do not puncture, incinerate or compact aerosol can.
When contents are depleted continue to depress button until all gas is expelled.
Reclaim by distillation, incinerate, or remove to a permitted waste facility.

RCRA 40 CFR 261 Classifications: As packaged and after use, it does not meet the criteria of a hazardous waste as defied under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it has neither the characteristics of Subpart C nor is listed in Subpart D.

Federal, State, and Local laws governing disposal of material can differ.
Ensure proper disposal compliance with proper authorities before disposal.

Section 14 TRANSPORTATION INFORMATION

	Proper Shipping Name	Hazard Class	UN number	NOTE
US DOT	AEROSOLS, non-flammable	2.2	UN1950	Limited Quantity (Shipping Papers are not required for Limited Quantities unless transported by air or vessel –each package must be marked with the Limited Quantity Mark)
US DOT Air	AEROSOLS, non-flammable	2.2	UN1950	Non-flammable Gas label required Limited Quantity: Y203
IATA	AEROSOLS, non-flammable,	2.2	UN1950	Non-flammable Gas label required Limited Quantity: Y203
IMDG	AEROSOLS, non-flammable,	2.2	UN1950	Limited Quantity

Section 15 REGULATORY INFORMATION

US Federal Regulations: SDS complies with the OSHA Hazard Communication Rule, 29 CFR 1910.1200.
CERCLA/Superfund, 40 CFR 117. 302: **---None of the chemicals have a reportable quantity--**
SARA Superfund and Reauthorization Act of 1986 Title III sections 302, 311,312 and 313:
Section 302 – Extremely hazardous substances (40 CFR 355): **---None of the chemicals are Section 302 hazards**
Section 311/312 – (40 CFR 370): :

Chemical Name	Fire	Sudden release of pressure	Immediate (acute) health hazard	Delayed (chronic) health hazard
trans-1,3,3,3-Tetrafluoroprop-1-ene	No	Yes	Yes	no

Section 313 – List of Toxic Chemicals (40CFC 372): This product **does not** contain any chemicals on the 313 list of Toxic Chemicals.
Toxic Substance Control Act (TSCA)**: All substances are TSCA listed.**
Resource Conservation and Recovery Act (RCRA 40 CFR 261) Subpart C & D: Refer to Section 13
Federal Water Pollution Control Act, Clean Water Act, 40 CFR 401.15 (formerly section 307) 40 CFR 116 (formerly section 311): This product contains no chemicals which are listed
California Proposition 65: **--- None of the chemicals are on the Proposition 65 list---**
In accordance with current California Air Resources Board (CARB) regulations regarding VOC content, this item is exempt based on its usage & product labeling.

STATE REGULATIONS:
This SDS contains specific health and safety data is applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.
California Proposition 65: Chemicals in this product are not on the list.

INTERNATIONAL REGULATIONS:
Canada WHMIS: Class A –Compressed Gas

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture

EUROPEAN UNION: European Union: Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.
SDS complies with Regulation (EU) No. 2015/830 [CLP/GHS]
This material is listed in ELINCS.
Regulation (EC) No 1005/2009 Ozone-depleting substances (ODS): Not chemicals listed.
Regulation (EC) No 649/2012, Annex 1, Chemicals subject to PIC: No chemicals listed
Regulation (EC) No 850/2004, Annex 1: No persistent organic pollutants present.
Directive 96/82/EC Seveso III, Annex 1:

Part 1- This product is not categorized as a dangerous substance.
Part 2- No chemicals listed.

REACH Directive EC1907/2006 Annex II and GHS requirements: To the best of our ability, this SDS is written in accordance to the requirements. This product is not subject to REACH restrictions. It does not contain substances that are candidates on the SvHC.

15.2 Chemical Safety Assessment: No chemical safety assessment has been carried out

Sections 16	**OTHER INFORMATION**

HMIS HAZARD RATING:
Health: Irritation or minor reversible injury possible.
Flammability: Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 °F (93 °C)
Physical Hazard: Materials which are normally stable, but can become unstable at high temperatures and pressures
Protective Equipment: Consult your supervisor and read the SDS, use safety glasses and gloves.

1	HEALTH
0	FLAMMABILITY
1	PHYSICAL HAZARD
B	PROTECTIVE EQUIPMENT

NFPA HEALTH HAZARD
Health: Exposure could cause irritation but only minor residual injury even if no treatment is given.
Flammability: Materials that will not burn.
Reactivity: Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.
Special Hazards: None

REVISION DATES, SECTIONS, REVISED BY:

19-Aug-13	Original Preparer: Steve Allen
27-Sept-13	Review, mkb
10-Jan-14	Changed name and part number, mkb
23-April-15	Updated to GHS, mkb
22-Jan-19	Updated and reviewed all sections, mkb
31-May-22	New propellant, mkb

ABBREVIATIONS USED IN THIS DOCUMENT:
NE – Not Established, NA – Not Applicable, NIF – No Information Found, ND – Not Determined
NOEC - No Observed Effect Concentration

ABRIDGED LIST OF REFERENCES:

Code of Federal Regulations (CFR)
The Sigma-Aldrich Library of Regulatory and Safety Data
Chemical Guide and OSHA Hazardous Communication Standard
The Environmental Protection Agency (www.epa.gov)
http://oehha.ca.gov/prop65/prop65_list
http://orise.orau.gov/emi/hazards-assessment/files/resources/epa-title3.pdf