

SAFETY DATA SHEET

Flux-Off® CZ

Section 1. Identification

Product identifier : Flux-Off® CZ
Product code : ES7208B, ES7200
Chemical name : Flux-Off® CZ Flux Remover
Other means of identification : Flux-Off® Cirozane™, ES7208B, ES7200
ES7200 (NSN 6850-01-436-4578)
Product type : Aerosol.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Supplier's details : Manufacturer
Chemtronics
8125 Cobb Center Drive
Kennesaw, GA 30152
Tel. 770-424-4888 or toll free 800-645-5244

Distributor
EMX Enterprises LTD
250 Granton Drive
Richmond Hill, ONT
Canada L4B 1H7
905-764-0040

Emergency telephone number (with hours of operation) : Chemtrec - 1-800-424-9300 or collect 703-527-3887
24/7

Section 2. Hazard identification

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
GASES UNDER PRESSURE Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
Contains gas under pressure. May explode when heated.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Response : IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Section 2. Hazard identification

- Storage** : Protect from sunlight. Store in a well-ventilated place.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 78%

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Chemical name** : Flux-Off® CZ Flux Remover
- Other means of identification** : Flux-Off® Cirozane™, ES7208B, ES7200
ES7200 (NSN 6850-01-436-4578)

Ingredient name	% (w/w)	CAS number
trans-1,2-Dichloroethylene	10 - 30	156-60-5
n-Propyl alcohol	1 - 5	71-23-8
Methylcyclohexane	1 - 5	108-87-2

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

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

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Section 4. First-aid measures

- Skin contact** : Causes skin irritation.
- Ingestion** : Harmful if swallowed.
- Over-exposure signs/symptoms**
- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
Ingestion Seek medical attention.

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

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. Bursting aerosol containers may be propelled from a fire at high speed.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
carbonyl halides

Special protective actions for fire-fighters : 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.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Section 6. Accidental release measures

- For non-emergency personnel** : 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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- 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 and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. 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. 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.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Empty containers retain product residue and can be hazardous.
- Advice on general occupational hygiene** : 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. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
trans-1,2-Dichloroethylene	CA British Columbia Provincial (Canada, 1/2020). TWA: 200 ppm 8 hours. CA Quebec Provincial (Canada, 7/2019). TWAEV: 793 mg/m ³ 8 hours. TWAEV: 200 ppm 8 hours. CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 200 ppm 8 hours. 8 hrs OEL: 793 mg/m ³ 8 hours. CA Saskatchewan Provincial (Canada, 7/2013). STEL: 250 ppm 15 minutes. TWA: 200 ppm 8 hours. CA Ontario Provincial (Canada, 6/2019). TWA: 200 ppm 8 hours.
n-Propyl alcohol	CA Alberta Provincial (Canada, 6/2018). Skin sensitizer. 15 min OEL: 984 mg/m ³ 15 minutes. 15 min OEL: 400 ppm 15 minutes. 8 hrs OEL: 492 mg/m ³ 8 hours. 8 hrs OEL: 200 ppm 8 hours. CA British Columbia Provincial (Canada, 1/2020). TWA: 100 ppm 8 hours. CA Ontario Provincial (Canada, 6/2019). TWA: 100 ppm 8 hours. CA Quebec Provincial (Canada, 7/2019). Absorbed through skin. STEV: 614 mg/m ³ 15 minutes. STEV: 250 ppm 15 minutes. TWAEV: 492 mg/m ³ 8 hours. TWAEV: 200 ppm 8 hours. CA Saskatchewan Provincial (Canada, 7/2013). STEL: 400 ppm 15 minutes. TWA: 200 ppm 8 hours.
Methylcyclohexane	CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 1610 mg/m ³ 8 hours. 8 hrs OEL: 400 ppm 8 hours. CA British Columbia Provincial (Canada, 1/2020). TWA: 400 ppm 8 hours. CA Ontario Provincial (Canada, 6/2019). TWA: 400 ppm 8 hours. CA Quebec Provincial (Canada, 7/2019). TWAEV: 1610 mg/m ³ 8 hours. TWAEV: 400 ppm 8 hours. CA Saskatchewan Provincial (Canada, 7/2013). STEL: 500 ppm 15 minutes. TWA: 400 ppm 8 hours.

Appropriate engineering controls

- : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Section 8. Exposure controls/personal protection

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.

Individual protection measures

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.

Eye/face protection : 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, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : 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.

Body protection : 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.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid. [Aerosol.]
Color : Clear. Colorless.
Odor : Ethereal.
Odor threshold : Not available.
pH : Not available.
Melting point/freezing point : Not available.
Boiling point, initial boiling point, and boiling range : 32°C (89.6°F)
Flash point : [Product does not sustain combustion.]
Evaporation rate : >1 (butyl acetate = 1)
Flammability : Not available.
Lower and upper explosion limit/flammability limit : Not available.
Vapor pressure : 29.3 kPa (220 mm Hg)

Section 9. Physical and chemical properties and safety characteristics

Relative vapor density	: >1 [Air = 1]
Relative density	: Not available.
Density	: 1.5 g/cm ³
Solubility	: Not available.
Solubility in water	: Not available.
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Heat of combustion	: 1.966 kJ/g
Viscosity	: Not available.
Flow time (ISO 2431)	: Not available.
<u>Particle characteristics</u>	
Median particle size	: Not applicable.
<u>Aerosol product</u>	
Type of aerosol	: Spray
Ignition distance	: 0 cm
Enclosed space ignition - Time equivalent	: 382 s/m ³
Enclosed space ignition - Deflagration density	: 854 g/m ³

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
trans-1,2-Dichloroethylene	LC50 Inhalation Gas.	Rat	24100 ppm	4 hours
	LD50 Dermal	Rabbit	>5 g/kg	-
n-Propyl alcohol	LD50 Oral	Rat	1235 mg/kg	-
	LD50 Dermal	Rabbit	5040 mg/kg	-
	LD50 Oral	Rat	1870 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
trans-1,2-Dichloroethylene	Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit	- -	10 mg 24 hours 500 mg	- -
n-Propyl alcohol	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Human	- -	24 hours 20 mg 47 hours 100 %	- -
Methylcyclohexane	Skin - Mild irritant Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit Rabbit	- - -	500 mg 24 hours 100 uL 24 hours 500 uL	- - -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	IARC	NTP	ACGIH
n-Propyl alcohol	-	-	A4

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Product/ingredient name	Result
Methylcyclohexane	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Causes skin irritation.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : Adverse symptoms may include the following:
Ingestion Seek medical attention.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
trans-1,2-Dichloroethylene	1235	N/A	24100	N/A	N/A
n-Propyl alcohol	1870	5040	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
trans-1,2-Dichloroethylene	Acute LC50 220000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
n-Propyl alcohol	Acute EC50 4480000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 1000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 2950000 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 3800000 µg/l Marine water	Fish - Alburnus alburnus	96 hours
Methylcyclohexane	Acute LC50 5800 µg/l Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	96 hours

Section 12. Ecological information

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
trans-1,2-Dichloroethylene	2.09	-	low
n-Propyl alcohol	0.2	-	low
Methylcyclohexane	3.61	186.21	low

Mobility in soil





Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : 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.

Section 14. Transport information

	TDG Classification	DOT Classification	IMDG	IATA
UN number	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	Aerosols, non-flammable
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

Additional information

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).

DOT Classification : **Reportable quantity** 5000 lbs / 2270 kg [399.78 gal / 1513.3 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 14. Transport information

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Canadian lists

- Canadian NPRI** : The following components are listed: volatile organic compounds; volatile organic compounds; n-propyl alcohol; heptane (all isomers)
- CEPA Toxic substances** : The following components are listed: hydrofluorocarbons

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Ingredient name	Status
HFC-134a	Annex F, Group I

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : Not determined.
- Japan** : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : Not determined.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : Not determined.
- United States** : All components are active or exempted.
- Viet Nam** : All components are listed or exempted.

Section 16. Other information

History

- Date of printing** : 10/7/2021
- Date of issue/Date of revision** : 10/7/2021
- Date of previous issue** : 10/7/2021
- Version** : 2

Section 16. Other information

Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- HPR = Hazardous Products Regulations
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- SGG = Segregation Group
- UN = United Nations

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method

References : Not available.

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.