



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA

Revision date 08-Aug-2019

Supersedes Date: 18-Jun-2019

Revision Number 5.1

1. Identification

Product identifier

Product Name FR-1410

Other means of identification

Product Code(s) 9311

Chemical name 1,2-Bis(pentabromophenyl) ethane

Synonyms FR-1410W
FR-1410F

Recommended use of the chemical and restrictions on use

Recommended use Flame retardant

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address

ICL-IP America Inc.
622 Emerson Road - Suite 500
St. Louis, Missouri 63141, USA
Tel:(314)983-7884 Fax:(314)983-7607
e-mail:msdsinfo@icl-group.com

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300
Medical: PROSAR 1-888-875-1685 (24HRS)

2. Hazard(s) identification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

This product is not classified as hazardous according to the UN GHS guideline and labeling is not required

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Other information

Not applicable

3. Composition/information on ingredients**Substance**

Chemical name	CAS No.	Weight-%
1,2-Bis(pentabromophenyl) ethane	84852-53-9	100

4. First-aid measures**Description of first aid measures**

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
Ingestion	If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately. NOTE: Never give an unconscious person anything to drink

Most important symptoms and effects, both acute and delayed

Symptoms	No information available.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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5. Fire-fighting measures

Suitable Extinguishing Media	Water spray, carbon dioxide (CO ₂), dry chemical powder or appropriate foam.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	When heated to decomposition, may release poisonous and corrosive fumes of Carbon Dioxide, Carbon Monoxide, Bromine and Hydrogen Bromide.
Special protective equipment for fire-fighters	Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid dust formation. Wear protective clothing specified for normal operations (see Section 8).

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Ventilate area and wash spill site after material pickup is complete. Sweep up, place in a bag and hold for waste disposal or possible reuse.

Environmental precautions Prevent product from entering drains, ditches and rivers.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Keep containers tightly closed. Avoid bodily contact.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in covered area, out of direct sunlight.

8. Exposure controls/personal protection

Control parameters

Exposure Limits The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
1,2-Bis(pentabromophenyl) ethane 84852-53-9	-	-	-

Appropriate engineering controls

Engineering controls Mechanical exhaust required.
Ventilation must be sufficient to maintain TLV-TWA below 3 mg/m³, respirable particles, and 10 mg/m³, inhalable particles (ACGIH recommendation for Particles (Insoluble or poorly soluble) Not Otherwise Specified (PNOS)).

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical safety goggles.

Hand protection Rubber gloves

Respiratory protection When using this compound and exposure through inhalation is likely, wear an OSHA approved Category 21C air-purifying respirator equipped with a full facepiece and high efficiency particulate filters or a Category 21C powered air purifying respirator.

Skin and body protection Body covering clothes and boots.

General hygiene considerations Safety shower and eye bath should be provided.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Off-white powder
Odor	None

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	352°C / 665.6 °F	None known
Boiling point / boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	Not applicable under standard conditions	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	3.14x10 ⁻¹¹ Pa (20°C)	None known
Vapor density	No data available	None known
Relative density	3.25 g/ml	None known
Water solubility	0.72µg/l at 25°C	None known
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available °C	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	Not available	None known

Other information

Oxidizing properties	No data available
Explosive properties	No data available

Molecular weight	972
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10. Stability and reactivity

Reactivity	No reactive hazards known/expected.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Not expected to occur.
Conditions to avoid	Heating above 320 °C.
Incompatible materials	Strong bases. Strong oxidizing agents. Strong acids.
Hazardous decomposition products	CO, CO ₂ , HBr & Br ₂ .

11. Toxicological information

Information on likely routes of exposure

Product Information

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity**Numerical measures of toxicity****Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
1,2-Bis(pentabromophenyl) ethane 84852-53-9	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit) > 2000 mg/kg (Rat)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Not irritant.

Serious eye damage/irritation Not irritant.

Respiratory or skin sensitization Not a skin sensitizer.

Germ cell mutagenicity Not mutagenic by the Ames Test. Not clastogenic in chromosome aberration test with Human lymphocytes. Did not induce chromosome aberrations in CHL cells when tested up to 5000 ug/mL in the presence or absence of S9 activation.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	ACGIH	IARC	NTP	US OSHA
1,2-Bis(pentabromophenyl) ethane 84852-53-9	-	-	-	-

Reproductive toxicity No information available.

STOT - single exposure No effects on specific target organs have been identified.

STOT - repeated exposure NOAEL 1000 mg/kg bw /day (90 days oral, rat)

Aspiration hazard Not expected to occur.

12. Ecological information

Ecotoxicity .

Component Information

Chemical name	Algae/aquatic plants	Fish	Crustacea	Toxicity to microorganisms
1,2-Bis(pentabromophenyl) ethane 84852-53-9	IC50: >110 mg/L (96h)	LC50: >110 mg/L (96h)	EC50: >110 mg/L (48h, Daphnia magna)	-

Persistence and degradability Not readily biodegradable

Bioaccumulation Not bioaccumulative.

Chemical name	Partition coefficient
1,2-Bis(pentabromophenyl) ethane 84852-53-9	6.6

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of in a safe manner in accordance with local/national regulations.

Contaminated packaging Dispose of in a safe manner in accordance with local/national regulations.

14. Transport information

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not relevant

ICAO/IATA Not regulated

DOT Not regulated

15. Regulatory information

International Inventories

TSCA	Listed
DSL/NDSL	Not Listed
ENCS	Listed
IECSC	Listed
KECL	Listed
PICCS	Listed
AICS	Not Listed
TCSI	Listed
NCI	Listed
TECI	Listed
NSQ	Not Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
TCSI - Taiwan Chemical Substance Inventory
NCI - Vietnam National Chemicals Inventory
TECI - Thailand Inventory FDA Existing Chemicals
NSQ - Mexico National Inventory of Chemical Substances

US Federal Regulations

U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)

Chemical name	U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)
1,2-Bis(pentabromophenyl) ethane - 84852-53-9	X

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
1,2-Bis(pentabromophenyl) ethane 84852-53-9	-	-	-	-

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
1,2-Bis(pentabromophenyl) ethane 84852-53-9	-	-

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations**US State Regulations**

This product does not contain any substances regulated by state right-to-know regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
1,2-Bis(pentabromophenyl) ethane 84852-53-9	-	-	-

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 1	Flammability 0	Instability 0	Physical and chemical properties -
HMIS	Health hazards 1	Flammability 0	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

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Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised.
Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, we make no representations as to the completeness or accuracy thereof. Information is supplied to you upon the condition that the persons receiving the information will make their own determination as to its safety and suitability for their purposes prior to use. In no event will we be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information. In addition, we shall not be liable for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

End of Safety Data Sheet