1. Identification of the substance & the company

Chemical name  
2,4,6-Tris(2,4,6-tribromophenoxy)-1,3,5-triazine

Chemical formula  
C_{21}H_{6}Br_{9}N_{3}O_{3}

Chemical family  
Brominated aromatic compound

Molecular weight  
1067.43

Type of product and use  
A flame retardant for thermoplastic resins

Supplier  
ICL-IP America Inc.  
622 Emerson Road - Suite 500  
St Louis, Missouri 63141, USA  
Tel:(314)983-7884 Fax:(314)983-7607

Emergency Telephone  
Chemtrec (800)424-9300

2. Hazards identification

Emergency overview  
White powder which is not hazardous

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Tris(2,4,6-tribromophenoxy)-1,3,5-triazine</td>
<td>25713-60-4</td>
<td>99.5</td>
</tr>
</tbody>
</table>
4. First-aid measures

**Eye contact**
Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

**Skin contact**
Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention if irritation occurs.

**Inhalation**
In case of dust inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

**Ingestion**
If swallowed, wash mouth thoroughly with plenty of water and give water to drink. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink.

5. Fire-fighting measures

**Suitable extinguishing media**
Carbon dioxide, dry chemicals, foam, water spray (fog).

**Fire fighting procedure**
Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode.

**Unusual fire and explosion hazards**
FR-245 dust was tested and was found to be not flammable. When heated to decomposition, may release poisonous and corrosive fumes of Carbon Dioxide, Carbon Monoxide, Nitrogen Oxides (NOx) and Hydrogen Bromide.
6. Accidental release measures

Personal precautions
Wear respirator, chemical safety goggles, rubber gloves and boots

Methods for cleaning up
Sweep up, place in a bag and hold for waste disposal or possible re-use
Avoid raising dust.
Ventilate area and wash spill site after material pickup is complete.

7. Handling and storage

Handling
Keep containers tightly closed. Avoid bodily contact.

Storage
Store in a dry, well-ventilated area

8. Exposure controls / personal protection

Exposure Limits:

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH-TLV Data</th>
<th>OSHA (PEL) Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Tris(2,4,6-tribromophenoxy)-1,3,5-triazine 25713-60-4</td>
<td>Not determined</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

Ventilation requirements
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)).

Personal protective equipment:
- Respiratory protection: Dust respirator
- Hand protection: Protective gloves
- Eye protection: Chemical safety goggles
- Skin and body protection: Body covering clothes and boots
Hygiene measures

Safety shower and eye bath should be provided. Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.

9. Physical and chemical properties

Appearance

White powder

Boiling point/range

Not applicable under standard conditions

Melting point/range

228-230°C

Flash point

None

Flammable/Explosion limits

Not flammable

Auto-ignition temperature

>400°C Not self-ignitable

Vapour pressure

1.52x10(-20) Pa (25°C)

Evaporation rate (ether=1)

Not applicable under standard conditions

Vapor density

Not applicable under standard conditions

Solubility:

- Solubility in water
  < 1µg/l (20°C)

- Solubility in other solvents
  Chloroform THF
  Methylene chloride
  n-octanol: 697 mg/l at 20°C

Specific gravity

2.44

Decomposition temperature

> 385°C

Partition coefficient

(n-octanol/water)

Log Pow = 13.6 (calculated)

Explosive properties

Not explosive Does not contain any chemically instable or highly energetic groups that might lead to an explosion.

Oxidising properties

Not oxidising The structure indicates non oxidizing properties

Particle size:

Particle size distribution was between 67% and 51% below 100 micron.

10. Stability and reactivity

Stability

Stable under normal conditions.

Materials to avoid

None known

Conditions to avoid

Heating above decomposition temperature

Hazardous decomposition products

Hydrogen bromide, carbon dioxide, carbon monoxide and nitrogen oxides.

Hazardous polymerization

Will not occur

11. Toxicological information
1. Toxicological information

Acute toxicity:
- Rat oral LD50 >2000 mg/kg (OECD Guideline 401)
- Rabbit dermal LD50 >2000 mg/kg (OECD Guideline 402)
- Eye irritation (rabbit) Not irritant
- Dermal irritation (rabbit) Not irritant

Dermal sensitization Not sensitising when tested according to OECD Guideline 406

Sub-chronic toxicity:
- NOEL 1000 mg/kg/day (oral rat)

Chronic toxicity No information available

Mutagenicity Not mutagenic by the Ames Test (Salmonella & E. coli) Not clastogenic in chromosome aberration test with Chinese hamster cells. Not clastogenic in chromosome aberration test with Human lymphocytes. Not mutagenic in the mouse lymphoma L5178Y test system.

Carcinogenicity Not classified by IARC Not included in NTP 11th Report on Carcinogens

Reproductive toxicity No evidence of adverse effects to reproductive organs was identified during sub-acute and sub-chronic toxicity testing. Given the lack of toxicity and the low level of absorption of FR-245 into the body, is not expected to have adverse effects on reproduction.

Other Following oral administration to Rats (OECD 417), absorption was very low (=<0.2%)

12. Ecological information

Note: The aquatic toxicity was tested at solubility level

Environmental fate Respiration inhibition of activated sewage sludge for 3 hour contact IC50 > 100 (Not inhibiting).

Aquatic toxicity:
- 96 Hour-LC50, Fish >0.013 mg/l (Carp)
- 48 Hour-EC50, Daphnia magna >0.013 mg/l
- EC50, Freshwater algae >0.013 mg/l, 96 Hours (growth inhibition)
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Toxicity to micro-organisms
Respiration inhibition of activated sewage sludge for 3 hour contact IC50 > 100 (Not inhibiting).

13. Disposal considerations

Waste disposal
Treat the solid waste and packaging waste via an incinerator equipped with an adequate gas cleaning system or send to a controlled landfill. Observe all federal, state and local environmental regulations when disposing of this material.

14. Transportation information

DOT
Not regulated

IMO
Not regulated

ICAO/IATA
Not regulated

15. Regulatory information

USA
Reported in the EPA TSCA Inventory.

Canada
Listed in NDSL

EU
European List of Notified Chemicals Substances (ELINCS) number 426-040-2

Japanese METI
ENCS:.5-6312

Australia
Not classified as hazardous according to criteria of NOHSC

New Zealand Inventory
Listed in NZIoC

China inventory
Listed in IECSC

Korea
ECL Serial No.: 2000-3-1422
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16. Other information

Product is not subject to classification according to GHS. No label elements required

This data sheet contains changes from the previous version in section(s)
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FR-245 is not classified as a dangerous chemical under the criteria of Regulation (EC) No 1272/2008 [CLP] (see § 2). Nevertheless, manufacturers using it should adopt good working practice during processing and avoid any emissions to the environment. It is recommended that FR-245 waste should be sent to incineration or to a controlled landfill.

Health, Safety & Environment Policy
We will strive to ensure that our operations and products meet the needs of the present global community without compromising the ability of future generations to meet their needs.
We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources.
Within the framework of our commitment to the Responsible Care program, we will provide a healthy and safe work environment for employees and will responsibly manage our products at all stages of their life cycle in order to protect human health and the environment whilst maintaining high production standards of operation.

TO MEET THIS COMMITMENT WE WILL:
Comply with or exceed applicable national and international regulatory requirements and other requirements to which we subscribe
Communicate openly and actively encourage dialogue with employees, customers and community concerning our products and operations
Implement documented management systems consistent with and for promotion of the Responsible Care ethics
Develop and supply products that can be manufactured, transported, used and disposed of safely whilst best meeting the needs of our customers
Regularly assess, continually improve and responsibly manage health, safety and environmental risks associated with products and processes throughout their life-cycles
Share knowledge and expertise with others and seek to learn from and incorporate improved practices into our own operations
Educate and train employees, contractors and customers to improve their HSE performance
Communicate up-to-date information to enable our workers, customers and other interested parties to handle our products in a safe and environmentally responsible manner
Endeavor to work with customers, suppliers, distributors and contractors to foster the safe use, transport and disposal of our chemicals
Support Product Stewardship programs in cooperation with customers, distributors and transporters
MATERIAL SAFETY DATA SHEET

Product name: FR-245
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Revision date: 30/08/2011
Supersedes: 05/12/2007

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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

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End of safety data sheet