



MATERIAL SAFETY DATA SHEET

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		

1. Identification of the substance & the company 产品及公司信息

Chemical name 化学名	Decabromodiphenyl oxide 十溴二苯醚
Synonym(s) 别名	DBDPO (decabromodiphenyl oxide), bis(pentabromophenyl) ether, decabromodiphenyl ether, Deca, Benzene, 1,1'-oxybis (2,3,4,5,6-pentabromo-, DBDPE (decabromodiphenyl ether)
Chemical formula 分子式	C ₁₂ Br ₁₀ O
Chemical family 化学组成	Polybrominated diphenyl oxides 多溴二苯醚
Molecular weight 分子量	959.2
Type of product and use 类型及用途	An inert additive flame retardant for use in a variety of polymers and fibers 惰性的添加阻燃剂, 应用于聚合体和光纤。
Company	Sino-Brom Compounds Co., Ltd. HTDZ Haihua, Weifang, Shandong, P.R. China Tel: & Fax 86-536-5328880-8506
Emergency telephone number 紧急电话	
--For China	+86 536-5328882 +86 21 53863322-831 +86 13701853928
--For Europe:	(+31)115689000
--For UK and Ireland:	(01865)407333
--For Asia-Pacific:	ALERT-SGS 24hr Toll Free Number: +800 ALERTSGS(+800-2537-8747) 24hr Singapore Exchange Number: +65 6542-9595
--For Japan:	+81(03)3552-1611

2. Hazards identification 危害

Adverse human health effects 对人体健康的不利影响 No adverse health effects in human are known 尚无对人体健康的不利影响

3. Composition / information on ingredients 成分

Components 成分	Weight %	Annex No.	EEC No	Classification 分类	Notes/注释
---------------	----------	-----------	--------	-------------------	----------

MATERIAL SAFETY DATA SHEET

Product Name FR-1210
Product id 8426
Revision date 26/08/2009 **Revision:** 9
Supersedes 07/08/2008

Decabromodiphenyl oxide 十溴二苯醚 1163-19-5	97		2146049	None 无	
---	----	--	---------	--------	--

4. First-aid measures 急救措施

Eye contact 眼睛接触 Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. 拨开眼皮, 用大量清水至少清洗 20 分钟。
 Get medical attention immediately. 立刻就医。

Skin contact 皮肤接触 Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. 立刻脱掉被污染的衣物, 用温和肥皂和清水至少清洗 15 分钟。衣物再使用前彻底清洗。
 Get medical attention if irritation occurs. 如有刺激感, 立刻就医。

Inhalation 吸入 In case of dust inhalation or breathing fumes released from heated material, remove person to fresh air.
 为防止吸入加热物质散发的烟尘, 将人员挪到空气新鲜处。
 Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately. 保持操作人员平静温暖。可采取人工供氧, 立刻就医。

Ingestion 误食 If swallowed, wash mouth thoroughly with plenty of water and give water to drink. Get medical attention immediately.
 如误吞, 用大量清水清洗口腔, 饮水。立刻就医。

NOTE: Never give an unconscious person anything to drink. 忌给昏迷者饮水。

Notes to the physician 就医建议 No specific antidote. Treat symptomatically and supportively
 无特定解毒剂, 应采取对症疗法和支持疗法。

5. Fire - fighting measures 防火措施

Suitable extinguishing media 适用的灭火物质 Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions 非易燃品。使用适合周围灭火条件的物质。

Fire fighting procedure 灭火程序 Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode.
 喷水器灭火。封闭仓库, 为灭火员提供正压模式的呼吸装备。

Unusual fire and explosion hazards 异常燃爆危害 When heated to decomposition, may release poisonous and corrosive fumes of Bromine, Carbon Monoxide, Carbon Dioxide and Hydrogen Bromide.
 遇加热分解时, 释放溴素, 一氧化碳, 二氧化碳, 和 HBr 等有毒且有腐蚀性烟雾。

6. Accidental release measures 意外泄露处理

Personal precautions 预防措施 Wear respirator, chemical safety goggles, rubber gloves and boots.
 戴呼吸器, 护眼罩, 橡胶手套和靴子。

MATERIAL SAFETY DATA SHEET

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		

Methods for cleaning up 清洗方法	Shovel into intact packaging and hold for waste disposal or possible re-use. Avoid raising dust. 铲入包装内, 以备废物处理或再利用。避免扬起尘土。 Ventilate area and wash spill site after material pickup is complete. 清理完毕, 保持通风, 清洗泄露地点。
--	---

7. Handling and storage 操作和储存

Handling 操作	Keep containers tightly closed. 保持集装箱完全封闭。 Avoid bodily contact 避免身体接触。
Storage 储存	Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid"). 储存于干燥, 凉爽, 通风处, 避开不相容物资。

8. Exposure controls / personal protection 暴露控制及人员保护

Exposure Limits: 暴露极限

Components	ACGIH-TLV Data	OSHA (PEL) Data
Decabromodiphenyl oxide 1163-19-5	Not determined 未知	Not determined 未知

Other Exposure Limits 其他暴露极限	The American Industrial Hygiene Association (IAHA) recommends Workplace Environmental Exposure Level (WEEL): 8-hr Time-weighted Average (TWA) of 5 mg/m ³ , skin. 美国工业卫生协会推荐 WEEL: 时间加权平均为 5mg/m ³ , 皮肤接触。
Ventilation requirements 通风要求	Ventilation must be sufficient to maintain atmospheric concentration below exposure limit. 良好通风, 保证大气浓度维持在暴露极限内。
Personal protective equipment: 个人防护设备	
-Respiratory protection 呼吸 保护	Dust respirator 防尘呼吸器
-Hand protection 手	Protective gloves 保护手套
-Eye protection 眼睛	Chemical safety goggles 护眼镜
-Skin and body protection 皮 肤和身体	Body covering clothes and boots 全身防护服及靴子
Hygiene measures 卫生措施	Do not eat, drink or smoke when material is handled, processed or stored. Wash hands carefully before eating or smoking. Safety shower and eye bath should be provided. 操作, 加工或储存时忌饮食或吸烟。在饮食或吸烟前洗净双手。提供淋浴和洗眼设备。

9. Physical and chemical properties 物理化学常数

Appearance 外观	White to off-white, fine, free-flowing powder, odourless
----------------------	--

MATERIAL SAFETY DATA SHEET

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		
<hr/>			
Melting point/range 熔点	白色或米白, 精细粉末, 无气味		
	300-310°C		
Boiling point/range 沸点	Not applicable 不适用		
Flash Point 闪点	None 无		
Flammable/Explosion Limits 易燃/暴露极限	Not flammable 非易燃		
Auto-ignition temperature 自燃温度	Not applicable 不适用		
Vapour pressure 蒸气压	4.63x10 ⁻⁶ Pa (21°C)		
Vapor density 蒸气密度	Not applicable under standard conditions 标准条件下不适用		
Evaporation rate(ether=1) 蒸发率	Not applicable under standard conditions 标准条件下不适用		
Solubility: 溶解度			
- Solubility in water 在水中	< 0.1 ug/L at 25°C		
- Solubility in other solvents 在其他溶剂中	Very slightly soluble in common organic solvents 普通有机溶剂中可轻微溶解		
Specific gravity 比重	3.0		
Density 密度	3.4 g/ml (25°C)		
Partition coefficient 分割系数 (n-octanol/water)	Log Kow - 6.265		
Decomposition temperature 分解温度	362°C		

10. Stability and reactivity 稳定性及反应性

Stability 稳定性	Stable under normal conditions 正常情况下稳定
Materials to avoid 要避免的物质	Strong oxidants 强氧化剂
Conditions to avoid 避免条件	Heating above decomposition temperature 超出分解温度的加热
Hazardous decomposition 危险分解物	CO, CO ₂ , HBr & Br ₂
Hazardous polymerization 危险聚合物	Will not occur 不发生

11. Toxicological information 毒性

Acute toxicity: 剧毒	
- Rat oral LD50 鼠口服 LD50	>5,000 mg/kg
- Rabbit dermal LD50 兔皮肤接触 LD50	>2000mg/kg
- Rat inhalation LC50	>48.2mg/l

MATERIAL SAFETY DATA SHEET

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		

鼠吸入 LC50	
- Eye irritation(rabbit)	Not irritant 无刺激
眼刺激(兔)	
- Dermal irritation (rabbit)	Not irritant 无刺激
皮肤刺激(兔)	
Effects of overexposure :	
过度曝光	
- Ocular 视觉上	Not irritant 无刺激
- Dermal 皮肤上	Not irritant 无刺激
Chronic toxicity 慢性毒性	No data available. 尚无数据
Mutagenicity 诱变性	<p>Not mutagenic by the Ames Test and by mouse lymphoma assay.</p> <p>根据艾姆斯试验及鼠淋巴瘤化验结果, 无诱变性。</p> <p>Negative in chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells.</p> <p>在鼠类卵巢细胞的染色体畸变试验和姐妹染色单体交换试验呈消极性。</p>
Carcinogenicity 致癌性	<p>Negative in the Bacterial Reverse Mutation Assay 细菌回复突变试验呈消极性。</p> <p>IARC Group 3 (animal inadequate evidence, human no data available).</p> <p>国际癌症研究机构 Group 3 动物实验证据不足, 人体试验尚未数据。</p> <p>NTP 2-year feed studies with decabromodiphenyl oxide showed some evidence of liver nodules in male and female rats and equivocal evidence for male mice at very high doses (>25,000 ppm). NTP 为期两年的十溴二苯醚研究显示, 在雄雌性鼠类的肝脏中发现一些致癌证据, 但在用量大于 25,000ppm 时雄性鼠类身上的致癌证据不明显。</p> <p>No evidence for this effect in female mice. 雌性鼠无此作用的证据</p> <p>Not included in NTP 11th Report on Carcinogens.</p> <p>不包含在 NTP 第 11 份关于致癌物资报告中</p>
Developmental toxicity 发展毒性	<p>In the oral developmental toxicity study in rats with decabromodiphenyl ether the NOEL (No Observable Effect Level) for maternal and developmental toxicity was 1000 mg/kg/day 在鼠类口服十溴发展毒性的研究中, 母体毒性和发展毒性的无可见作用量为 1000 mg/kg/day</p>

12. Ecological information 环保

Information on ecological Effects 生态影响	<p>Plastic containing FR-1210 treated in a modern up to date incinerator produces an incineration gas, which is analysed, showed no polybrominated Dibenzodioxins and Dibenzofurans present at a level higher than the limits of quantitation (LOQs) specific by US EPA Toxic Substance Control Act (TSCA) 40 CFR 766.27 and are below the limits specified in German Ordinance "Chemikalien -Verbotsverordnung".</p> <p>含 FR-1210D 的塑料品在焚烧处理时会产生焚烧气体, 经分析, 气体中 PBDD 和 PBDF 含量未超出 TSCA 40 CFR766.27 规定限度和德国相关法规的限度。</p>
Environmental fate 生态环境	<p>FR-1210 was determined to be persistent: not readily biodegradable.</p> <p>FR-1210 具有持久性: 不易生物降解。</p> <p>Not INHERENTLY BIODEGRADABLE. 非固有生物降解。</p>

MATERIAL SAFETY DATA SHEET

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		

Aquatic toxicity :水生毒性 Reproduction 再生	<p>The high log Kow value (6.27) indicates that the product will adsorb strongly onto sludge and sediments and is not expected to be mobile in soil. The potential for uptake and accumulation of the substance by fish and other aquatic and terrestrial organisms appears to be low.</p> <p>Log Kow 值高达 6.27 显示这种物质会强吸附在软泥和沉积物上, 不会再土壤上移动。鱼类, 其他水生物或陆地有机物移动物质的可能性很小。</p> <p>No effects on aquatic organisms are expected to occur at concentrations up to the substances water solubility. 在浓度不超过水溶解度的液体中对水生物无影响。</p> <p>The No Observed Effect Concentration (NOEC) for reproduction in Earthworm after exposure of 28 day is 4910 mg/kg dry soil.</p> <p>在暴露 28 天后, 对蚯蚓再生的无可见作用浓度为 4910mg 每千克干燥土壤。</p>
---	--

13. Disposal considerations 处理

Waste disposal 废物处理	<p>The recommended method is incineration (see also section16).</p> <p>推荐使用焚烧的方法。(详见 16 节)</p> <p>Observe all federal, state and local environmental regulations when disposing of this material.在处理这类物质时遵守所以国家和地方的相关规定</p>
----------------------------	---

14. Transportation information 运输

IMO	Not regulated 尚无规定
ADR/RID	Not regulated 尚无规定
ICAO/IATA	Not regulated 尚无规定
DOT	Not regulated 尚无规定

15. Regulatory information 规章制度

EU 欧盟	<p>EU risk assessment under Regulation 793/93/EC conducted on Deca-BDE confirms that there are no significant risks to the environment or human health which would justify risk reduction measures.</p> <p>根据 793/93/EC 法规的风险评估证实 Deca-BDE 对环境和人体健康无大的风险, 表明风险降低措施是正确的。</p> <p>In contradiction to this publication, commercial deca-BDE is restricted under the European Union Directives 2002/95/EC, “ Restrictions on use of Hazardous Substances ” (RoHS) restrictions in electronics and electrical equipment.</p> <p>与此相比, 欧盟 2002/95/EC 法规限制 deca-BDE 贸易。详见 RoHS 标准。</p>
--------------	---

MATERIAL SAFETY DATA SHEET

Product Name	FR-1210	
Product id	8426	
Revision date	26/08/2009	Revision: 9
Supersedes	07/08/2008	
-EEC No.	214-604-9	
-Indication of danger 危险指示	Not subject to labelling in accordance with EEC Directives. 根据 EEC 规定无需标签指示	
Australia 澳大利亚	Listed in AICS This substance is on the National Pollutant Inventory (NPI) of Australia. This substance is listed under PART1,Group1 Substances 列于澳大利亚国家污染物质编目第一部, 第一组。	
USA 美国	Reported in the EPA TSCA Inventory. TSCA Section 12b – Export notification is required per a final test rule under Section4 (a). 列于 EPA TSCA 编目中。	
Canada 加拿大	Listed in DSL This substance is listed under Part1, Group1 Substances in the National Pollutant Release Inventory (NPRI) for 2008. Information about this substance must be reported to the Minister of the Environment in accordance with subsection 46 (1) of the Canadian Environmental Protection Act, 1999. 列入 2008 国家污染物质排放编目第一部, 第一组中。根据 1999 年加拿大环境保护法 46 节规定, 此类物质信息必须上报环境部。	
Japan 日本	Not listed in WHMIS. 未列入 WHMIS 中。 Type II Monitoring Chemical Substance. ISHL No. 4-(14)-149.	
Japan METI 日本	ENCS No.3-2846	
China inventory 中国	Listed	
Korea 韩国	Listed in ECL (KE-27715)	
Philippines 菲律宾	Listed in PICCS	
New Zealand Inventory 新西兰	Listed in NZIoCs	
Singapore 新加坡	Listed in the Hazardous Substance Control List as a member of the generic group: Polybrominated diphenyl ethers. 列于危险物质控制清单中。	
Switzerland 瑞士	Listed in Giftliste 1 (G-8308)	
Taiwan 中国台湾	Taiwan Toxic Chemical Substances List 列入台湾有毒化学物质清单中。 This is Class IV Toxic chemical. Minimum control level is 30w/w% TAIWAN No.:91-01	

16. Other information 其他信息

This data sheet contains changes from the previous version in section(s) 与原版本的差别主要在如下几部分:

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		

15,(Japanese only),16

The product FR-1210 is not classified as a dangerous chemical under the criteria of Directive 67/548/EC (see § 15).
根据 67/548/EC 指令标准, FR-1210 产品并非危险化学品。

The product FR-1210 was investigated in an EU Risk Assessment and no risk for human health or the environment were identified.

在欧盟风险评估调查中发现 FR-1210 产品对人体健康和环境不会造成风险。

However, the product is persistent; therefore, manufacturers using FR-1210 should adopt working practice during processing and avoid any emissions to the environment. It is recommended that FR-1210 waste should be incinerated under appropriate conditions.

但是本产品具有持久性,因此,使用 FR-1210 的生产商在加工过程中应实施操作规范,避免排放有害物。推荐在适当的条件下 FR-1210 废料采用焚烧的方法。

1. Different countries, have prohibited the manufacture, import, and commercialization of Deca-BDE and/or products (the scope of such product is to be determined in accordance with every such country's applicable law) containing Deca-BDE.

不同的国家都禁止了 Deca-BDE 或其产品的生产,进口和贸易,包括 Deca-BDE。(电子设备的范围根据各国适用法律决定)

2. The use of Deca-BDE must be in conformity with applicable law including the aforesaid prohibition. It is the responsibility of the holder of this Safety Data Sheet to verify the existence of any such prohibition and not to sell,import,commercialise use of Deca-BDE in products,articles,preparations and other objects designated for electrical and electronic equipment in any jurisdiction where regulations prohibiting such sales, import, commercialization or other such use are in application.

Deca-BDE 的使用要符合包括上述禁止范围的适用法律。此安全数据表的持有者有责任证实,在禁止销售,进口,贸易或其他用途的现行法律中,是否有这样的禁止令存在,是否有其他针对指定电子设备的禁止。

3. It is the responsibility of the holder of this Safety Data Sheet to ensure that its customers or any other party receiving from it products containing Deca-BDE are prohibited to the same extent mentioned above in section 1 and 2.

此安全数据表持有者有责任确保其客户和他方了解包含 Deca-BDE 的产品也在上述 1, 2 的禁止范围内。

Health, Safety, Environment Policy

Sino-Bromine Compounds Co., Ltd. (SBCL) is committed to responsibly manage its products at all stages of their life cycle in order to protect human health and the environment.

This responsibility applies throughout development, manufacture, transportation, use, recycle and disposal of SBCL products.

中以溴化物负责在产品各个周期管理产品以保护人体健康和环境。这种责任适用于产品的开发,生产,运输,使用及处理。

WITHIN THIS FRAMEWORK SBCL IS COMMITTED TO: 在此框架内,中以溴化物要做到以下几点:

* Comply with national and international regulatory requirements 遵照国家和国际的规章制度

* Conform to the ISO 14001 requirements for environmental management systems and periodically evaluate performance as part of the company's existing quality audits system.

遵照 ISO14001 相关环境管理制度,定期评估成效,并作为公司现行的质量审核制度

* Design products and processes which prevent risk to health and the environment at production sites and along the supply chain 产品和工艺设计避免在生产地和物流环节中对健康和环境造成危害。

* Improve efficiency in use of energy & natural resources, promote recycling and waste management through safe & environmentally sound end of life programs.

提高能源和自然资源的利用效率,通过安全环保的方式提高再利用效率,提高废物处理效率。

* Work for continual improvement in HSE performance 不断完善 HSE 体系

* Regularly assess and responsibly manage health, safety and environmental risks associated with products and



MATERIAL SAFETY DATA SHEET

Product Name	FR-1210		
Product id	8426		
Revision date	26/08/2009	Revision:	9
Supersedes	07/08/2008		

processes.

定期评估和责任管理与产品和工艺相关的 HSE 风险

* Educate and train all managers and employees to improve their HSE performance

培训管理层及员工以提高 HSE 成效

* Distribute updated information concerning its policy and products to its workers, customers and other interested parties through Material Safety Data Sheet (MSDS), workers' safety sheets and through the SBCL Internet Site
在 SBCL 网站上通过 MSDS, 员工安全表来对员工, 客户和其他感兴趣的人员发布最新政策及产品信息。

* Develop business relationships with responsible suppliers, transporters and distributors and provide them with HSE support, information and training

与负责的供应商, 运输公司及经销商建立业务关系, 提供 HSE 支持, 信息和培训

* Support Product Stewardship programs in cooperation with customers, distributors and transporters

与客户, 经销商, 和运输公司合作支持产品责任计划

* Allocate the necessary resources for implementation of this policy. 执行此政策时分配相应必要资源。

SBCL Disclaimer 免责声明

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, Sino-Bromine Compounds Co., Ltd. makes no representations as to the completeness or accuracy thereof.

上述文件包含的说明与建议迄今真实有效, 具有实践参考价值, 但 SBCL 不申明其完整性和完全精确性。

Information is supplied upon the condition that the persons receiving same will make their own determination as to its safety and suitability for their purposes prior to use.

在条件符合上述说明的情况下, 使用前根据不同用途决定其安全性和稳定性。

In no event will Sino-Bromine Compounds Co., Ltd be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. SBCL 将不对因参考上述说明而引起的任何性质的损失负责

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE, ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

有关这份说明中的产品信息方面, 对授权及适用性, 不做任何特殊目的或其他性质的明确或隐含的说明, 保证。

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

如此版本中 MSDS 内容与英语版有差异, 请以英语版本为准。

Prepared By 编制

Technical Department in SBCL
Telephone: +86 536 5328882
Telefax: +86 536 5328882
www.sbcl.com.cn
e-mail: SBCL@Service.com.cn

End of safety data sheet