EBP (Firemaster® 2100RM)

EBP [Ethane bis(pentabromophenyl)], which is supplied by LANXESS Solutions US Inc. as Firemaster 2100RM, is a product added to polymers or textile back-coatings to reduce the flammability of those materials. EBP is typically added along with other chemical components to the base polymer that will be used to manufacture the plastic- or latex-based products of interest. EBP is handled in industrial facilities designed for the manufacture of products that benefit from reduced flammability characteristics.

Identification

EBP is referred to by several different names including:

- Firemaster 2100RM
- bis(pentabromophenyl)ethane
- Ethane bis(pentabromophenyl), bisEBP
- Decabromodiphenyl ethane
- 1,1'-(ethane-1,2-diyl)bis[pentabromobenzene]
- 1,2-Bis(pentabromophenyl) ethane
- CAS Number 84852-53-9

Description

Production:

EBP is produced in dedicated manufacturing units designed for the production of chemicals. The resulting reaction product is further refined to meet application specifications, then packaged in bulk, semi-bulk and smaller packages for distribution to customers who will use it in their polymer systems.

Uses:

EBP is used in a wide variety of applications and with diverse polymer systems to reduce the potential for fire. EBP is typically part of a pre-mix formulation for both plastic and textile applications. The pre-mix formulation is sometimes further prepared and then either melted or cured to become part of the polymer matrix.

EBP is used in the manufacture of plastics, coatings, adhesives, automobiles, in foams used in electrical equipment, and in materials used for construction. It has found wide use, because polymers based upon organic materials or petroleum can be highly flammable if left untreated. After this product is added to the polymer system, the base materials are less likely to ignite. If ignition does occur, the fire will spread more slowly than it would in untreated material.

Properties: Appearance: White Powder
Melting Range: 348-353 °C
Water Solubility: <0.01 g/100 g

Potential Human Health Effects

Health Effects:

EBP is safe to use in industrial settings that are equipped with suitable engineering controls, when appropriate personal protective equipment is worn, and when proper hygiene measures are followed.

High level exposure to EBP is unlikely to occur under normal work conditions. In the unlikely event that high level exposure does occur, EBP is not acutely hazardous. Workers subjected to high levels of this chemical are unlikely to be harmed.

EBP is a fine powder. Consequently, the most likely exposure scenario is due to dust that could form while the bags are being discharged in an industrial setting. Dust that is inhaled could irritate the respiratory system, if poor ventilation is employed or respiratory protection is not worn and the dust is inhaled.

Just as with aspirin, water, rubbing alcohol, bathroom cleaner and other commonly used chemicals and materials, EBP does have an inherent level of toxicity that must be understood and safeguarded against through the use of engineering controls, personal protective equipment and appropriate procedures. The

Safety Data Sheet is the best resource to consult for understanding the health risks associated with EBP and the appropriate protective measures to be employed.

There are no known negative health effects for users of end products manufactured with an EBP-containing polymer.

Industrial Use:

EBP is used in a wide variety of polymer-based products. It is used in well-controlled manufacturing facilities by people trained in the handling of polymer additives. EBP used in a manufacturing setting is processed using best practice techniques developed to minimize any potential risk of exposure. Typically, sites utilize engineered systems to minimize the potential for exposure to all chemicals used in the process. An unplanned release of EBP is not likely to represent a life-threatening situation due to its chemical characteristics. In any spill or release incident, all non-essential personnel are immediately evacuated upwind of the spilled material. All personnel involved with correcting a spill situation are trained and properly equipped with the required personal protective equipment.

Consumer Use:

It is very unlikely that consumers would be exposed to EBP in its concentrated form because it is only sold for industrial use in the manufacture of polymers and other products and is not sold directly to consumers. There is no known data that indicates that EBP can readily leach out of the products where it is used in a manner that represents significant risk for consumers.

Environmental Release:

When used in an industrial setting, EBP is typically handled using engineered systems designed to control releases from the facility.

EBP that is released will collect on hard surfaces and could potentially mix with soil or other porous surfaces. Contained releases of EBP should be collected and recycled or treated as waste in accordance with relevant regulations. Soils contaminated by spills should be remediated and disposed of in an appropriate manner.

Physical Hazards

EBP is a white powder similar in form to laundry detergent. It is non-flammable and essentially water insoluble.

Potential Environmental Impact

Environmental Fate Information:

EBP must be stable enough to be processed in its intended applications. If it is released into the environment, this stability will likely make it slow to break down. It is important to manage emissions while manufacturing with EBP.

EBP that has been incorporated into a polymer matrix is not readily released into the environment.

Aquatic and/or Terrestrial Toxicity:

Releases of EBP into the aquatic or terrestrial environment should be avoided. In some jurisdictions, releases to water are explicitly prohibited. For example, in the United States, EBP is sold under the conditions of a Significant New Use Rule (SNUR) which prohibits it from being released into the waters of the United States. Soils that are contaminated by spills are collected and disposed of in an appropriate manner.

Product Stewardship:

Manufacturing locations:

Facility management procedures, Safety Data Sheets, technical guidance documents, and training are used to communicate safe handling, risk mitigation measures, and emergency response requirements to employees at processing locations. Personal protective equipment should be used to prevent contact with EBP solids or dust; protective clothing, respiratory protection, gloves and eye protection are commonly worn when handling EBP in an industrial setting. LANXESS Solutions US Inc. supplies EBP to companies who have a long history and/or experience in using similar products in their applications.

Environment:

Managing emissions during manufacture and processing of polymer additives is the focus of the Voluntary Emissions Control Action Program (VECAP), a product stewardship initiative introduced and managed by major manufacturers of treatments to reduce the flammability of plastic products. VECAP is used by our industry to partner with the supply chain to understand, control and reduce releases into the environment through application of best practices.

LANXESS Solutions US Inc. further recommends that solid waste and packaging waste be either incinerated with an adequate gas cleaning system or sent to a controlled landfill.

Consumers:

Consumers are not likely to be exposed to EBP distributed by LANXESS Solutions US Inc. because it is not sold directly to consumers, nor do we endorse sales to consumer markets.

LANXESS Solutions US Inc. conducts an ongoing analysis of its products to evaluate potential risk areas throughout the product's life cycle. Chemical risks are identified at the very early stage of new products. They are evaluated by stage-gated reviews using environmental, health, and safety (EHS) criteria. The analysis of existing products will evaluate raw materials, manufacturing, transportation, customer end-use and disposal. Additionally, before changes in existing product formulations are made, a detailed evaluation is made of the proposed change. A critical component of all of these processes is the Safety Data Sheet, which lists detailed product hazard information.

Potential product risks are managed using internal and external controls. In the context of a continually improving risk-reduction program, periodic reviews of the current controls are conducted in order to identify opportunities for improvements or enhancements. This includes adaptation of existing procedures to changes in regulations (e.g., covering workplace and transportation).

Conclusion

EBP is chemical with a unique and highly specialized ability to improve the safety of plastics and other organic materials by reducing flammability in a manner that maintains end-product performance characteristics. Though there are potential hazards associated with EBP, it is only handled by highly trained people in manufacturing environments utilizing specialty equipment, safety controls, and personal protective equipment.

Contact Information

LANXESS Solutions US Inc.
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Notices

Use and Application Information

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.