

**HEALTH AND SAFETY
ISSUE NUMBER 16****1. DESCRIPTION**

1.1 This data sheet covers Britton Group polyethylene films, that are manufactured from Low Density, Linear Low Density and High Density Polyethylene. Depending on the specific end use of the film, these polymers may be used singularly, in blends or may be co-polymerized from any of the following:

- **Butene**
- **Hexene**
- **Octene**
- **Butyl Acrylate**
- **Methacrylic Acid**
- **Vinyl Acetate**

1.2 Master batches are used in low concentrations to impart special properties to the film. They are polyethylene based and encapsulate the active component:

- **Colourants (organic and inorganic pigments)**
- **Anti-static Agents (Amines)**
- **Slip Agents (Amides)**
- **Anti-block Agents (inorganic particulates)**
- **UV Stabilisers (amines, benzophenones and nickel quenchers)**
- **Processing Aids**

1.3 Britton Group films supply a variety of films in terms of width, thickness, colour and formats. The films may be laminated, flexographic printed, and converted. Printing is by the flexographic process.

1.4 This data sheet implies no indication of the suitability of any of the range of Britton Group films for specific applications.

2. CHEMICAL RESISTANCE

- 2.1 Polyethylene films are almost completely inert to most acids, alkalis and solvents at room temperature. However, care should be taken to avoid some hydrocarbon solvents, that will cause the film to swell and weaken. Strong oxidizing acids will also weaken the film. Print, when applied, can be dissolved by many solvents including surface active cleaning agents

3. FOOD APPROVAL

- 3.1 Customers should specify "For Food Contact" on their orders together with details of intended end use, including product to be packed and temperature if the film is destined to be used in contact with food. Details of clearance against specific regulations are available on request
- 3.2 Where food contact materials are specified, all polymers and masterbatches used in the manufacture of the film meet current US and EU food contact regulations, including the **EEC Directive 2002/72/EC**
- 3.3 **Printed Films:** The inks used by Britton Group are manufactured from non-toxic materials and are formulated in accordance with SBPIM and BCF RECOMMENDATIONS **FOR INKS FOR FOOD WRAPPERS.**

4. HAZARDS

- 4.1 No occupational exposure standard exists for polyethylene films and they are **not** classified as very toxic, toxic, harmful, corrosive, irritant, carcinogenic, mutagenic, teratogenic or dangerous to the environment under the Chemicals (Hazard Information and Packaging) Regulations 1993 (also know as 'Chip'.

4.2 Toxicity

4.2.1 Ingestion

Polyethylene films should not be ingested even though they are generally regarded as harmless. Some films contain additives that may be harmful if swallowed. Should ingestion occur, wash out mouth with water, and obtain medical attention.

4.2.2 Inhalation

If heated to over 300°C, the product may form vapours or fumes, which could cause irritation, coughing, and shortness of breath. If affected by fumes from heated material, remove from source of exposure into the fresh air. Get medical attention if the symptoms persist. Product processing and heat sealing may produce dust vapour or fumes. To minimise these risks, it is recommended that a local exhaust system is placed above the equipment, and that the work area is properly ventilated.

4.2.3 Physical Contact

Thin films can obstruct breathing passages which necessitates precautions to warn against such dangers as young children placing film or bags over their mouths. Under normal conditions polyethylene films supplied by Britton Group do not present a toxic hazard through skin contact or inhalation.

Molten Material: Should molten material contact the skin, immediately flood affected area with copious amounts of cold water. **Do not** attempt to remove molten or solidified material from the skin. Obtain immediate medical attention

4.3 Effect of Heat

4.3.1 Fire

When polyethylene films are heated in air, melting will occur at temperatures of approximately 100°C - 130°C, decomposition commences at temperatures in excess of 300°C and auto ignition occurs at temperatures in excess of 350°C.

Incomplete oxidation will result in the formulation of hazardous substances such as:

- **Carbon monoxide (TLV 50ppm TWA 8 hours)**
- **Aldehydes, eg formaldehyde (TLV 2ppm TWA 8 hours)**
- **Acrolein (TLV 0.1ppm TWA 8 hours). Carbon dioxide (TWA 8 hours 500ppm)**
- **Hydrocarbons and soot**

The burning of butyl acrylate, methacrylic acid and vinyl acetate copolymer grades may result in the release of irritant acid vapours. Combustion of master batches may lead to evolution of small quantities of various other decomposition products.

4.3.2 Fumes

Inhalation of combustion fumes should be avoided. Fire fighters are recommended to wear full protective clothing and breathing apparatus.

4.4 Static

Polyethylene films can build up static charges during handling that can cause electrical shocks. Care should be taken to ensure that handling equipment does not generate excessive charges.

4.5 Dust

Should any operation be undertaken where dust is produced, every attempt should be made to minimize atmospheric levels by the use of adequate ventilation. As with any dust a TLV of 10mg/m³ (8 hour TWA) should be adhered to.

4.6 Bulk Properties

Polyethylene films can be slippery and walking on film should be avoided.

4.7 General

Good industrial hygiene procedures should be observed when handling polyethylene films. Smoking, eating and drinking in working areas should be prohibited.

5. WASTE DISPOSAL

Scrap polyethylene films are not classified as notifiable waste under the Environmental Protection Act 1990 and may be disposed of at approved landfill sites, or by incineration under approved conditions. Recycling into non-critical end uses is possible and encouraged.

6. STORAGE CONDITIONS

Polyethylene films are resistant to adverse weather conditions, but should be stored away from direct sunlight in clean, dry conditions. Prolonged exposure to sunlight will cause a loss of physical properties and fading of colours on films that are not UV stabilized.

Storage of the product at elevated temperatures should be avoided. Such exposure may cause changes in the physical characteristics of the film and, as a consequence, problems with blocking and print offset may occur. A maximum storage temperature of 30°C is recommended with 15 - 20°C being considered ideal.

For most standard film types, a maximum storage period of 6 months is recommended. However, for heavily pigmented films, and those containing migratory additives, it is recommended that they be used as quickly as possible. Films, that have been corona treated for printing, should be used within 3 - 4 months as treatment levels deteriorate with time.

The product is combustible and all normal precautions should be taken to avoid fires starting near the material. Once started fires can be fierce and difficult to extinguish. Good water sprinkler protection is recommended for storage areas.

It is recommended that advice should be sought from the local Fire Authority on fire fighting equipment and procedures.

7. PRINTED FILMS

7.1 Inks

Inks are predominantly nitrocellulose based with a variety of pigments providing the colouration. When burnt these may evolve some nitrogen-based oxides in addition to those mentioned in (4.3.1).

7.2 **Solvents**

IMS and ethyl acetate are employed as ink solvents. Virtually all solvents are volatilised on press and are therefore not present in significant concentrations in the finished product.

8. **LAMINATES**

Laminates use isocyanate - based adhesives that result in polyureathanes in the final product.

In the case of fire isocyanates may be released maximum exposure 0.02mg/m³ (8-hour average), and contained breathing apparatus must be worn.

9. **GENERAL**

As these materials may be converted or resold, the relevant details of hazardous and safe handling should be passed to the end users of the material. Customers are urged to ensure that the product is entirely suitable for their own purposes, as Britton Group is unable to foresee every end use. **Contact BRITTON GROUP LOUTH for advice.**

The information contained in this publication, while accurate to the best knowledge and belief of Britton Group, is not intended and should not be construed as a warranty or representation for which Britton Group assumes any legal responsibility.

While any information or advice given by Britton Group is given in good faith, it is the responsibility of the customer to ensure that Britton Group products for the particular end use intended.