Product Safety Assessment

INTEGRAL™ Films

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Names
- INTEGRAL™ adhesive film
- Polyolefin adhesive film
- Multipurpose adhesive film
- Adhesive film
- Monolayer adhesive film
- Monolayer bonding film
- Multilayer adhesive film
- Tie layer adhesive film
- INTEGRAL 602 adhesive film
- INTEGRAL 604 adhesive film
- INTEGRAL 625 adhesive film
- INTEGRAL 629 adhesive film
- INTEGRAL 630 adhesive film
- INTEGRAL 640 adhesive film
- INTEGRAL 709 adhesive film
- INTEGRAL 801 adhesive film
- INTEGRAL 808 adhesive film
- INTEGRAL 816 adhesive film
- INTEGRAL 821 adhesive film
- INTEGRAL 835 adhesive film
- INTEGRAL 842 adhesive film
- INTEGRAL 848 adhesive film
- INTEGRAL 899A adhesive film
- INTEGRAL 900 adhesive film
- INTEGRAL 906A adhesive film
- INTEGRAL 909 adhesive film
- INTEGRAL 917 adhesive film
- INTEGRAL 925 adhesive film
- INTEGRAL 933 adhesive film
- INTEGRAL 936 adhesive film
- INTEGRAL 938 adhesive film
- INTEGRAL 950 adhesive film
- INTEGRAL 962 adhesive film
- INTEGRAL 925LM adhesive film
- INTEGRAL 933 adhesive film
- INTEGRAL 936 adhesive film
- INTEGRAL 938 adhesive film
- INTEGRAL 950 adhesive film
- INTEGRAL 962 adhesive film
- INTEGRAL B304 adhesive film
- INTEGRAL D200 adhesive film
- INTEGRAL D201 adhesive film
- INTEGRAL D305 adhesive film
- INTEGRAL E100 adhesive film

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Product Overview
- INTEGRAL™ adhesive films are dry, non-tacky adhesive films that are activated by heat and pressure.¹ For further information, see Product Description.
- INTEGRAL adhesive films are used as adhesives in a wide variety of laminating applications, including packaging, paper, appliances, and automotive.² For further information, see Product Uses.

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²®Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

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Because INTEGRAL™ adhesive films are used in food-packaging applications and other consumer goods, it is possible for consumers to come in contact with them. Workplace exposure is also possible. INTEGRAL films are not sold for direct consumer use. For further information, see Exposure Potential.

Health risks associated with individual products may vary based on their formulation or intended use. For further information, see Health Information.

INTEGRAL adhesive films are expected to be inert in the environment. No bioconcentration is expected because of relatively high molecular weight. No appreciable biodegradation is expected. INTEGRAL films are practically non-toxic to aquatic organisms on an acute basis. For further information, see Environmental Information.

INTEGRAL films are stable under normal storage and use conditions. Exposure to elevated temperatures can cause these films to decompose. For further information, see Physical Hazard Information.

Manufacture of Product

- **Manufacturing** – The Dow Chemical Company produces INTEGRAL™ films at facilities in Findlay, Ohio and Licking River, Ohio.
- **Process** – INTEGRAL films are manufactured using polyolefin-based resins. The type of polyolefin resin used for a given film product is dependent on the desired characteristics of the finished film. Resin pellets are fed to an extruder, where they are melted. Pellets containing pigment can be blended with the clear pellets to make films of various colors. The molten polymer emerges from a die as a cylindrical tube, which is then expanded (blown) to form a film and then cooled. The resulting film is then edge-trimmed and wound on a core.

Product Description

INTEGRAL™ adhesive films are polyolefin-based films that are dry, non-tacky, and activated by heat and pressure. The films are available in a variety of colors and thicknesses, ranging from 1.0 to 10.0 mil (25.4 to 254 µm) with varying physical properties to suit application requirements. INTEGRAL films are manufactured in continuous rolls and sold for industrial use.

Product Uses

INTEGRAL™ adhesive films are used primarily in laminating applications, and are engineered to adhere to virtually any substrate, including foam, fabric, paper, metal, and wood. INTEGRAL films are used in a wide variety of applications and products including appliances, paper, packaging, protective systems and clothing, textiles, and automotive.

Exposure Potential

INTEGRAL™ films are not sold directly to consumers, but may be present in products that consumers use. Based on the uses for these films, the public could be exposed through:

- **Workplace exposure** – Exposure can occur in a manufacturing facility or in laminating or packaging facilities that use these films. Mechanical laminating equipment can cause formation of dusts. Good housekeeping should be maintained. Layers of flammable dusts should not be permitted to accumulate. Occupations requiring protective clothing made with...
INTEGRAL™ films are also an exposure source. Each facility should have a thorough safe handling training program for employees and appropriate work processes and safety equipment in place to avoid exposure. See Health Information.

- **Consumer exposure to products containing INTEGRAL™ films** – Although Dow does not sell these films for direct consumer use, consumers may come into contact with packaging and products made with INTEGRAL adhesive films. Films used for food packaging are made from resins manufactured in compliance with FDA food-additive regulations and are considered safe for food contact. See Health Information.

- **Environmental releases** – Films that are not used should be collected and reprocessed or disposed of properly. The preferred options include sending to a licensed, permitted recycler, reclaimer, incinerator or other thermal destruction device, and landfill. INTEGRAL adhesive films are expected to be inert in the environment. No bioconcentration is expected because of their relatively high molecular weight. These films are practically non-toxic to aquatic organisms on an acute basis. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Because these products are films, large releases are irrelevant. However, as mentioned in the Workplace Exposure section above, dust formation can occur during processing. When suspended in air, dusts can pose an explosion hazard. Eliminate all sources of ignition immediately. Disposal practices must be in compliance with all federal, state, provincial, and local laws and regulations. Do not dispose of these films in sewers, on the ground, or into any body of water. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Deny any unnecessary entry into the area. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing or fight the fire from a safe distance. Dense smoke is produced when the product burns. If the material is molten, do not apply a direct water stream. Use a fine water spray or foam. Soak thoroughly with water to cool and prevent reignition. See Environmental, Health, and Physical Hazard Information.

For more information, request the Article Safety Information Sheet from the Dow Customer Information Group. Because INTEGRAL™ films are fabricated articles, Material Safety Data Sheets are not required.

**Health Information**

Health information for INTEGRAL™ films is summarized on the relevant Article Safety Information Sheets. It is important to note that health risks associated with individual products may vary based on their formulation or intended use. The Article Safety Information Sheet is the preferred source for specific health information. These materials may also contain minor components or additives that have additional health risks. An overview of health information for INTEGRAL films appears below.

**Eye contact** – Contact with dust may cause irritation or corneal injury due to mechanical action.

**Skin contact** – Contact is essentially nonirritating. Contact with heated material during industrial processing could cause thermal burns.

**Inhalation** – Film dusts resulting from processing operations could cause respiratory irritation.

**Ingestion** – Swallowing is unlikely.

For more information, request the Article Safety Information Sheet from the Dow Customer Information Group.
Environmental Information

INTEGRAL™ films are plastics that are not soluble in water. In water, INTEGRAL films may sink or float depending on the product density. No appreciable biodegradation is expected, but surface photodegradation with exposure to sunlight and degradation due to mechanical action would be expected. No bioconcentration is expected because of the relatively high molecular weight.

INTEGRAL films are practically non-toxic to aquatic organisms on an acute basis (EC50 greater than 100 mg/L).

For more information, request the Article Safety Information Sheet from the Dow Customer Information Group.

Physical Hazard Information

INTEGRAL™ films are stable under recommended storage and use conditions. Avoid temperatures above 200°C (392°F). Exposure to elevated temperatures can cause the product to decompose. Decomposition products depend on temperature, air supply, and the presence of other materials. Decomposition products can include, but are not limited to, aldehydes, alcohols, hydrogen chloride, and organic acids.

Avoid contact with aromatic amines, aromatic hydrocarbons, and halogenated hydrocarbons.

For more information, request the Article Safety Information Sheet from the Dow Customer Information Group.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of INTEGRAL™ adhesive films. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Article Safety Information Sheet, Technical Data Sheet, or Contact Us.

Additional Information

- Request the Article Safety Information Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/packaging/contact/index.htm)
- Stick with Us: INTEGRAL™ Adhesive Films, The Dow Chemical Company, Form No. 500-02048-0802 (request from the Dow Customer Information Group)


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