Product Safety Assessment

MOR-ESTER™ Polyester Resins for Food Packaging Applications


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Names
- MOR-ESTER™ Polyester Resins for Food Packaging Applications
- MOR-ESTER 49000 P
- MOR-ESTER 49002 DTFE
- MOR-ESTER 49002 PS
- MOR-ESTER 49005
- MOR-ESTER 49006 P
- MOR-ESTER 49032 P
- MOR-ESTER 49032 PC
- MOR-ESTER 49102 PS

Product Overview
- MOR-ESTER™ Polyester Resins for food packaging applications are polyester resins supplied as solid yellow pellets with a mild odor.¹ For further details, see Product Description.
- MOR-ESTER Polyester Resins for food packaging applications are tough but flexible solid polyester resins used as adhesives for plastic film and metal surfaces for food packaging applications.²,³ For further details, see Product Uses.
- Exposure can occur either in facilities that manufacture MOR-ESTER Polyester Resins for food packaging applications or in the various industrial or manufacturing facilities that use these products. These products are not sold for direct consumer use, but goods used by consumers may incorporate these products. Contact with dried and cured product is not considered to present a risk to consumers.¹ For further details, see Exposure Potential.
- Monomer vapors from heated product may cause slight eye irritation, and inhalation of vapors from heated product may cause irritation of the nose, throat, and lungs as well as headache and nausea. Prolonged or repeated skin contact may cause slight irritation.¹ For further details, see Health Information and request the relevant Safety Data Sheet from the Dow Customer Information Group.
- MOR-ESTER Polyester Resins for food packaging applications are expected to degrade slowly in the environment. These products are not likely to accumulate in the food chain and are expected to be practically nontoxic to fish and other wildlife. For further details, see Environmental Information.

¹TM Trademark of the Dow Chemical Company ("Dow") or an affiliated company of Dow.
These products are considered stable under recommended storage and normal use conditions. For further details, see Physical Hazard Information.

Manufacture of Product

- **Locations** – These products are manufactured in various global locations by Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company, and its global affiliates. The materials are produced in locations and quantities necessary to meet market demand.
- **Process** – MOR-ESTER™ Polyester Resins for food packaging applications are produced using proprietary processes and materials.

Product Description

MOR-ESTER™ Polyester Resins for food packaging applications are polyester resins supplied as solid yellow pellets with a mild odor. The polymer content is approximately 100% with some minor components or additives.

Product Uses

MOR-ESTER™ Polyester Resins for food packaging applications are tough but flexible solid polyester resins which may be used as is or crosslinked for added chemical and temperature resistance. Products may be diluted in solvents for specific applications. These products offer excellent adhesion to most plastic films and metal surfaces for use in food packaging applications listed below:

- Heat seal for films and foils
- Prime coat for films
- Laminating adhesive
- Tie layer

Exposure Potential

MOR-ESTER™ Polyester Resins for food packaging applications are used in the production of industrial and consumer products. Based on the uses for this product, individuals could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture MOR-ESTER Polyester Resins for food packaging applications or in the various industrial or manufacturing facilities that use these products. Those working in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to prevent exposure. See Health Information.
- **Consumer exposure to products containing** MOR-ESTER Polyester Resins for food packaging applications – Dow does not sell MOR-ESTER Polyester Resins for direct consumer use, but they are used in the production of industrial and packaging materials. Goods used by consumers may incorporate these products. MOR-ESTER polyester resins used for food-contact applications should comply with applicable standards set by the U.S. Food and Drug Administration (FDA) and/or European Union (EU) Directives concerning food-contact. Contact with dried and cured product is not considered to present a risk to consumers. See Health Information.
- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, surface water, or groundwater. Respiratory protection is necessary for cleaning up spills and leaks. For small spills, MOR-ESTER Polyester Resins for food packaging applications should be swept or vacuumed up and collected in a suitable container for disposal. These products are insoluble in water and expected to be practically nontoxic to aquatic organisms on an acute basis. See Environmental, Health, and Physical Hazard Information.
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, ventilate the area and sweep or vacuum up spilled material. The product should be captured, collected, and reprocessed, or disposed of according to applicable governmental regulations. Try to prevent the material from entering drains or water courses. Do not contaminate surface water. See Environmental, Health, and Physical Hazard Information.
• In case of fire – Deny any unnecessary entry into the area. Use extinguishing materials that are appropriate to local circumstances and the surrounding environment. Heating or fire conditions can liberate toxic gas. To avoid thermal decomposition, do not overheat product. Do not allow runoff from fire fighting to enter drains or water courses. Collect contaminated fire extinguishing water separately; fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA). See Environmental, Health, and Physical Hazard Information.

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

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

**Eye contact** – Monomer vapors from heated product may cause slight eye irritation.

**Skin contact** – Prolonged or repeated skin contact may cause slight irritation.

**Inhalation** – During extrusion processes, inhalation of monomer vapor from heated product may cause irritation of the nose, throat, and lungs, headache, and nausea.

**Ingestion** – Swallowing small amounts incidental to normal handling is not expected to be harmful; however, swallowing larger amounts may cause injury.

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

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Environmental Information
Environmental information for MOR-ESTER™ Polyester Resins for food packaging applications is summarized on the relevant Safety Data Sheets. These materials may also contain solvents or additives that have additional environmental impact. It is important to note that environmental impact associated with individual products may vary based on their formulation or intended use. The Safety Data Sheet is the preferred source for specific environmental information. An overview of environmental information for MOR-ESTER Polyester Resins for food packaging applications appears below.

If introduced into water, MOR-ESTER Polyester Resins for food packaging applications would be expected to degrade slowly including degradation by physical action or by exposure to sunlight. Though not considered readily biodegradable, these products will biodegrade slowly in water and soil environments and would be removed by biological wastewater-treatment facilities as biosolids.

These products are not likely to accumulate in the food chain (bioconcentration potential is low) due to their high molecular weight. MOR-ESTER Polyester Resins for food packaging applications are expected to be practically nontoxic to fish and other wildlife.

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

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Physical Hazard Information
MOR-ESTER™ Polyester Resins for food packaging applications are considered stable under recommended storage and normal use conditions. Avoid overheating these products as heating may cause thermal decomposition and the liberation of toxic gas.
For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Regulatory Information
Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of MOR-ESTER™ Polyester Resins for food packaging applications. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Data Sheet, or Contact Us.

Additional Information
- Request the relevant Safety Data Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/assistance/dowcig.htm)


References
1 MOR-ESTER™ 49002-PS [Adhesive] Material Safety Data Sheet, The Dow Chemical Company
2 MOR-ESTER™ 49002-PS [Adhesive] Technical Data Sheet, Rohm and Haas Company
3 MOR-ESTER™ 49000-P [Adhesive] Technical Data Sheet, Rohm and Haas Company
NOTICES

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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