Product Safety Assessment
*MOR-MELT™* Reactive Hot-Melt Adhesives


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**Names**
- MOR-MELT™ reactive hot-melt adhesives
- MOR-MELT R-5003 reactive hot-melt adhesive
- MOR-MELT R-5006 reactive hot-melt adhesive
- MOR-MELT R-7001 reactive hot-melt adhesive

**Product Overview**
- MOR-MELT™ reactive hot-melt adhesives range from opaque, off-white to amber-colored solid products. They are composed of an isocyanate-terminated polyurethane resins that are cured by moisture. They are manufactured by Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company, and its foreign affiliates. For further details, see [Product Description](#).
- MOR-MELT reactive hot-melt adhesives were developed for composite panel laminating applications. MOR-MELT R-7001 reactive hot-melt adhesive is used primarily for fabric-bonding applications. For further details, see [Product Uses](#).
- Worker exposure to MOR-MELT reactive hot-melt adhesives is possible during manufacture, transport, or use. MOR-MELT adhesives are for industrial use only. Consumer contact with these adhesives is unlikely. For further details, see [Exposure Potential](#).
- Eye contact can cause irritation, pain, and tearing. Skin contact can cause moderate skin irritation and reddening and may lead to skin sensitization. Inhalation of heated vapors can cause irritation of the nose, throat, and lungs, headache, nausea, vomiting, coughing, difficulty in breathing, tightness in the chest, respiratory sensitization, or lung damage. Ingestion may cause severe irritation of the mouth, throat, and digestive tract. Long-term exposure may cause lung damage. For further details, see [Health Information](#).
- MOR-MELT reactive hot-melt adhesives are expected to degrade slowly in the environment. Due to their high molecular weight, the cured polyurethane polymers are not expected to accumulate in the food chain or to be toxic to fish and other aquatic organisms. For further details, see [Environmental Information](#).
- MOR-MELT reactive hot-melt adhesives are stable under recommended storage and normal use conditions. Avoid contact with strong oxidizers, acids, peroxides, bases, and amines. MOR-MELT reactive hot-melt adhesives should be kept away from water (moisture) to avoid the potential for hazardous polymerization. For further details, see [Physical Hazard Information](#).

**References**
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Manufacture of Product

- **Locations** – Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company, manufactures MOR-MELT™ reactive hot-melt adhesives in the United States at facilities in Ringwood, Illinois, and Malcom, Iowa.
- **Process** – MOR-MELT reactive hot-melt adhesives are manufactured and formulated using proprietary Rohm and Haas materials and technology.

Product Description

MOR-MELT™ reactive hot-melt adhesives range from opaque, off-white to amber-colored solid products. They are composed of an isocyanate-terminated polyurethane resins that are cured by moisture. These products bond readily to various foam cores, wood composites, primed metals, and many difficult-to-bond substrates, such as acrylonitrile-butadiene-styrene (ABS) plastics, fiber-reinforced plastics (FRP), and surface-treated plastics.

Product Uses

MOR-MELT™ reactive hot-melt adhesives are applied by conventional hot-melt coaters or spray equipment designed to handle reactive hot-melt adhesives. The MOR-MELT R-5000 series of adhesives was developed for composite panel laminating applications, particularly garage doors, paneling/side-walls, structural insulated panels (SIPs), and related markets. MOR-MELT R-7001 adhesive was designed primarily for fabric bonding. Compared to conventional products and technologies, the bond strength of MOR-MELT reactive hot-melt adhesives can develop within a few minutes, allowing for high manufacturing throughput and reduced cost.

Exposure Potential

MOR-MELT™ reactive hot-melt adhesives are used for industrial applications. Based on this, the public could be exposed through:

- **Workplace exposure** – Workers using these adhesives in manufacturing operations could be exposed during maintenance, sampling, testing, application, 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 limit exposure. See [Health Information](#).

- **Consumer exposure to MOR-MELT adhesives** – These products are for industrial use only and are not intended for consumers. Consumers may come into contact with articles that have been laminated with these adhesives; however contact with cured adhesive is unlikely because the adhesive is contained between two layers of the laminated article. See [Health Information](#).

- **Environmental releases** – Due to the use pattern for these adhesives, releases to the environment are expected to be minimal. If released, the cured polyurethane polymers will tend to float in water and will be removed in wastewater-treatment facilities by adsorption to biosolids. In the event of a spill, the focus is on immediate clean-up to prevent contamination of soil, surface water, or groundwater. 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. Evacuate personnel to safe areas. Avoid contact and avoid breathing vapor. Appropriate safety equipment must be worn when handling spills of these materials, when in the molten state. Sweep up or vacuum spilled material and collect in

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suitable and properly labeled containers for disposal, when cooled and solid. Floors may be slippery until the material has cooled and resolidified. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Isolate the area and deny unnecessary entry. Use carbon-dioxide or dry-chemical extinguishers, foam, or water in very large quantities to fight the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Contain fire water if possible to minimize the potential for environmental damage. Follow emergency procedures carefully. When exposed to fire or extreme heat, closed containers can rupture. Do not permit water to contaminate containers. See Environmental, Health, and Physical Hazard Information.

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

Health Information

Health information for MOR-MELT™ reactive hot-melt adhesives is summarized on the relevant Safety Data Sheets. It is important to note that health risks associated with individual products may vary based on their formulation or intended use. These products may contain additives that have additional health risks. The Safety Data Sheet is the preferred source for specific health information. An overview of health information for these products appears below.

**Eye contact** – Contact can cause eye irritation, pain, and tearing.

**Skin contact** – Contact can cause moderate eye irritation and reddening. Contact may also lead to skin sensitization in susceptible individuals, even at low concentrations.

**Inhalation** – Inhalation of vapors or mist can cause irritation of the nose, throat, and lungs, along with headache, nausea, vomiting, coughing, difficulty in breathing, tightness in the chest, respiratory sensitization, or lung damage.

**Ingestion** – Ingestion may cause severe irritation of the mouth, throat, and digestive tract, along with nausea, diarrhea, gastrointestinal irritation, vomiting, and abdominal pain.

**Repeated exposure** – Long-term exposure to diisocyanates may cause lung damage, including reduced lung function, which may be permanent.

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

Environmental Information

MOR-MELT™ reactive hot-melt adhesives are not water soluble. If released into the water environment, the cured polyurethane polymers will float and will ultimately bind with soil, suspended particles, or sediment. They will be removed in wastewater-treatment facilities by adsorption to biosolids. Although the cured polyurethane polymers are essentially nonbiodegradable, they would be expected to degrade slowly in the environment, including degradation by physical action or by exposure to sunlight.

The cured polyurethane polymers are not expected to accumulate in the food chain due to their high molecular weight, and they are not expected to be toxic to fish and other aquatic organisms.

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Because of their high molecular weight and low solubility in water, MOR-MELT™ reactive hot-melt adhesives would have a low potential to bioconcentrate (accumulate in the food chain). They would not be considered harmful to aquatic organisms.

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

**Physical Hazard Information**

MOR-MELT™ reactive hot-melt adhesives are stable at recommended storage and normal use conditions. Avoid contact with strong oxidizers, acids, peroxides, bases, and amines. These adhesives should be kept away from water (moisture) to avoid the potential for hazardous polymerization. Store these products away from heat or ignition sources.

For more information, request the 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-MELT™ reactive hot-melt adhesives. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety 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/thoughts.htm) or http://building.dow.com/contact/contact.htm]


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