Product Safety Assessment

ROLEASE™ Solvent- and Water-Based Release Lacquers


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Names
• ROLEASE™ Solvent- and Water-Based Release Lacquer
• ROLEASE SB-101 Water-Based Release Lacquer
• ROLEASE 73-119 Solvent-Based Release Lacquer

Product Overview
• ROLEASE™ Release Lacquers are resins available either dissolved in a solvent or as a water-based emulsion. For further details, see Product Description.
• ROLEASE Release Lacquers are used to supply gloss as well as consistent coefficient of friction and release properties from natural rubber-based cold seals in flexible packaging applications. For further details, see Product Uses.
• Those working with ROLEASE Release Lacquers in manufacturing operations could be exposed during maintenance, sampling, testing, application, or other procedures. Small amounts may be present in cured form in flexible packaging, so that consumer contact is possible. Contact with the dried or cured product is not considered to present a risk to consumers. For further details, see Exposure Potential.
• The resins in these products are essentially harmless. Contact with the solvents in the solvent-based lacquers can cause moderate to severe eye irritation, skin irritation, irritation of the nose and through and central nervous system (CNS) effects, as well liver and kidney effects, heart damage, blood disorders and adverse reproductive effects. The solvent(s) in this material can be absorbed through intact skin. For further details, see Health Information or request the relevant Safety Data Sheet from the Dow Customer Information Group.
• The cured ROLEASE Release Lacquers are expected to be inert in the environment. The primary solvents are unlikely to persistent in the environment. They are either readily biodegradable or are expected to degrade within hours in the atmosphere by reaction with photochemically produced hydroxyl radicals. The solvents are not expected to accumulate in the food chain, and they range from practically nontoxic to highly toxic to fish and other aquatic organisms. For further details, see Environmental Information.
• ROLEASE Release Lacquers are stable under recommended storage and normal use conditions. For further details, see Physical Hazard Information.

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Manufacture of Product

- **Locations** – The Dow Chemical Company and its global affiliates produce ROLEASE™ Solvent- and Water-Based Release Lacquers at various locations around the world.
- **Process** – ROLEASE Release Lacquers are produced using proprietary processes and materials.

Product Description\(^{12,13}\)

ROLEASE™ Solvent- and Water-Based Release Lacquers are resins either dissolved in a solvent or as a water-based emulsion.

- **ROLEASE 73-119** – The water-based product is an acrylic resin marketed as a milky-white liquid with an ammonia-like odor. It contains about 30% resin and 50% water, with lesser amounts of ethylene glycol monobutyl ether (3%), ethanol (6%), and a waxy blend (8%).
- **ROLEASE SB-101** – The solvent-based product is a light-brown liquid with solvent-like odor. It contains both polyamide (32%) and styrene/acrylic (6%) resins dissolved in petroleum naphtha (30%), ethanol (30%), and hexane (2%).

Product Uses\(^{14}\)

ROLEASE™ Solvent- and Water-Based Release Lacquers are used to supply gloss as well as consistent coefficient of friction and release properties from natural rubber-based cold seals in flexible packaging applications. They offer good adhesion to a variety of substrates, including paper and polyester film. These products are commonly applied to the substrate as a thin coating using conventional coating technologies and then dried to remove water and solvents.

Exposure Potential\(^{15,16}\)

ROLEASE™ Solvent- and Water-Based Release Lacquers 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 ROLEASE Release Lacquers or in the various industrial or manufacturing facilities that use these products. They are produced, distributed, and stored in closed systems. Those working with ROLEASE Release Lacquers 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 products containing ROLEASE Release Lacquers** – Dow does not sell these products for direct consumer use, but small amounts may be present in cured form in flexible packaging, so that consumer contact is possible. Contact with dried or cured product is not considered to present a risk to consumers. ROLEASE Release Lacquers used for food-contact or medical packaging applications comply with applicable standards set by the U.S. Food and Drug Administration (FDA) and European Union (EU) Directives concerning food-contact.\(^{17}\) See Health Information.

- **Environmental releases** – Small quantities of these cured products may be released into the environment if consumer products that contain them are discarded. 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 spills of the solvent-based product, eliminate all sources of ignition immediately. Small spills of either product should be absorbed with materials such as sand, silica gel, or sawdust. If released, the cured products will tend to float in water and will typically be removed in biological wastewater-treatment facilities by adsorption to biosolids. The major solvent, ethanol, will exhibit a low tendency to volatilize from water. Since ethanol is readily biodegradable, it is expected to be removed from water and soil environments, including biological wastewater-treatment facilities. The other major solvent, petroleum naphtha, will tend to volatilize to air, where it is expected to degrade within hours from exposure to photochemically produced hydroxyl radicals. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the product should be captured, collected, and reprocessed or disposed of according to applicable governmental regulations. Evacuate personnel to safe areas. Ventilate the area. Respiratory protection is necessary for emergency work. For spills of the solvent-based product, eliminate all sources of ignition immediately, use only explosion-proof equipment, and ground and bond all containers and handling equipment. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Use water spray, carbon-dioxide or dry-chemical extinguishers, or foam to fight the fire. Fight advanced fires from a protected location. Stay upwind. Avoid breathing smoke. Firefighters should wear positive-pressure, self-contained breathing...
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apparatus (SCBA) and protective firefighting clothing. Vapors can travel a long distance and flashback. Closed containers can rupture via pressure build-up when exposed to fire or extreme heat. During a fire, harmful gases can be generated by combustion or decomposition. Keep fire water out of waterways and sewers to minimize the potential for environmental damage. Follow emergency procedures carefully. 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 ROLEASE™ Solvent- and Water-Based Release Lacquers 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. The Safety Data Sheet is the preferred source for specific health information. These products may also contain minor components or additives that have additional health risks. An overview of health information for these products appears below.

Eye contact – The resins in these products are essentially harmless. Contact with the solvents in solvent-based lacquers can cause moderate to severe eye irritation, conjunctivitis, pain, tearing, or moderate corneal injury.

Skin contact – The resins in these products are essentially harmless and the solvents are not classified as sensitizers. Contact with the solvents can cause moderate skin irritation, swelling and redness of the skin, and defatting of the skin, which can lead to irritation and dermatitis. The solvents may be harmful if absorbed through intact skin, under repeated conditions and may be fatal in large amounts.

Inhalation – Inhalation of solvent vapor or mist can cause irritation of the nose, throat, and lungs, as well as headache, nausea, drowsiness, vomiting, dizziness, clouded or double vision, fatigue, narcosis, convulsions, lack of coordination, slurred speech, weakness, unconsciousness, coma, or even death. Aspiration can result in lung injury.

Ingestion – The solvents can cause gastrointestinal irritation, lack of coordination, abdominal pain, headache, dizziness, vomiting, nausea, drowsiness, unconsciousness, or coma, or even death.

Repeated exposure – Prolonged or repeated overexposure to ethanol can affect the liver, heart, and stomach or lead to mental deterioration or fetal abnormalities. Prolonged or repeated overexposure to diethylene glycol monobutyl ether and ethylene glycol monobutyl ether can affect the blood, kidneys, or liver. In animal studies, prolonged or repeated overexposure to naphtha affected the kidneys or liver. Prolonged or repeated overexposure to n-hexane can affect the central nervous system, testes, and lungs or lead to visual impairment.

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

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Environmental Information

Cured ROLEASE™ Solvent- and Water-Based Release Lacquers are nonvolatile and insoluble. They will tend to float in water and eventually bind to soil, suspended particles, or sediment. Although the cured products are not biodegradable, they would be expected to degrade slowly in the environment, including degradation by physical action or by exposure to sunlight. The cured products would likely be removed in biological wastewater-treatment facilities by adsorption to biosolids. The cured products 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 or other aquatic organisms.

The major solvent, ethanol, has moderate volatility and is miscible in water. When introduced to water, it has a very low tendency to volatilize from water and minimal tendency to bind to soil and sediment. Ethanol is readily biodegradable, which suggests that it will be removed from water and soil environments, including biological wastewater-treatment facilities. The other major solvent, petroleum naphtha, has high volatility and is insoluble in water. When introduced, it has a high tendency to move from water to air, where it is expected to degrade within hours by reaction with photochemically produced hydroxyl radicals. The solvents are not expected to
accumulate in the food chain. Ethanol is practically nontoxic (LC50/EC50 >100 mg/L) while petroleum naphtha is highly toxic (LC50/EC50 between 0.1 and 1.0 mg/L) to fish and other aquatic organisms on an acute basis.

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

Physical Hazard Information

ROLEASE™ Solvent- and Water-Based Release Lacquers are stable under recommended storage and normal use conditions. Avoid contact with ignition sources, strong oxidizers, acids, or peroxides. Thermal decomposition may generate styrene and acrylic monomers.

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 ROLEASE™ Solvent- and Water-Based Release Lacquers. 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 and Technical Data Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Contact Us (www.dow.com/assistance/dowcig.htm)


References


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