Product Safety Assessment

ADCOTE™ Ethylene Vinyl Acetate (EVA) Solvent-Based Heat-Seal Coatings


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Names
- ADCOTE™ EVA Solvent-Based Heat-Seal Coatings
- ADCOTE 31DW2062-UV Heat-Seal Coating
- ADCOTE 33-131 Heat-Seal Coating
- ADCOTE 33AS35A NT Heat-Seal Coating
- ADCOTE 33DW1315 Heat-Seal Coating
- ADCOTE 33DW149G Heat-Seal Coating
- ADCOTE 33DW1491G Heat-Seal Coating
- ADCOTE 33DW1981G-UV Heat-Seal Coating
- ADCOTE 33DW2086G-UV Heat-Seal Coating
- ADCOTE 33G1AG Heat-Seal Coating
- ADCOTE 33P11 Heat-Seal Coating
- ADCOTE 33P11M Heat-Seal Coating
- ADCOTE 33P21 Heat-Seal Coating
- ADCOTE 33R1G Heat-Seal Coating
- ADCOTE 33R2B Heat-Seal Coating
- ADCOTE 33R4G Heat-Seal Coating
- ADCOTE 33T96A Heat-Seal Coating
- ADCOTE 33X144 Heat-Seal Coating
- ADCOTE HS 33-131F Heat-Seal Coating
- ADCOTE HS 33-191 Heat-Seal Coating
- ADCOTE HS 33-193 Heat-Seal Coating
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- ADCOTE HS 33-226 Heat-Seal Coating

Product Overview
- ADCOTE™ EVA Solvent-Based Heat-Seal Coatings are a family of products supplied as off-white to yellow opaque liquids or gels.¹² For further details, see Product Description.
- ADCOTE EVA Solvent-Based Heat-Seal Coatings are used to form peelable seals to various substrates in medical and lidding packaging applications.³⁴ For further details, see Product Uses.

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- Exposure can occur either in facilities that manufacture ADCOTE™ EVA Solvent-Based Heat-Seal Coatings or in the various industrial or manufacturing facilities that use these products. ADCOTE EVA Solvent-Based Heat-Seal Coatings are not sold directly to consumers, but as they are used in packaging applications, consumers may come into contact with them. Exposure to cured and/or dried product is not considered to present a risk to consumers. For further details, see Exposure Potential.

- Eye contact with the solvents in these products can cause severe irritation, conjunctivitis, and corneal opacity. Skin contact with the solvents in these products may cause moderate irritation, reddening, and defatting and drying of the skin that can lead to irritation and dermatitis. Ingestion of the solvents in these products may cause drowsiness, vomiting, nausea, diarrhea, gastrointestinal irritation, and central nervous system effects. Aspiration into the lungs may cause lung injury, pulmonary edema (fluid in lung tissue and air spaces), and lung inflammation. Inhalation of solvent vapor or mist can cause headache, nausea, drowsiness, dizziness, slow respiration, and irritation of the nose, throat, and lungs. Inhalation of high concentrations of solvent vapor or mist may cause abdominal pain, unconsciousness, pulmonary edema, coma, or death. For repeated exposure effects and further details, see Health Information or request the relevant Safety Data Sheet from the Dow Customer Information Group.

- The resins in ADCOTE EVA Solvent-Based Heat-Seal Coatings would be expected to degrade slowly in the environment. Due to their high molecular weight, the resins are not expected to accumulate in the food chain, and they are not expected to be toxic to fish or other aquatic organisms. The solvents in these products range from inherently to readily biodegradable, have a low tendency to accumulate in the food chain (bioconcentration potential is low), and range from practically nontoxic to moderately toxic to aquatic organisms on an acute basis. For further details, see Environmental Information.

- ADCOTE EVA Solvent-Based Heat-Seal Coatings are considered stable under recommended storage and normal use conditions. Because of the associated solvents, these products are flammable and should be kept away from ignition sources. For further details, see Physical Hazard Information.

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Manufacture of Product

- **Capacity** – ADCOTE™ EVA Solvent-Based Heat-Seal Coatings are manufactured in various global locations by Rohm and Haas Company, a wholly owned subsidiary of The Dow Chemical Company, and its global affiliates.

- **Process** – ADCOTE EVA Solvent-Based Heat-Seal Coatings are produced using proprietary processes and materials.

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Product Description

ADCOTE™ EVA Solvent-Based Heat-Seal Coatings are solvent-borne, ethylene-vinyl acetate copolymer products that are supplied as off-white to yellow opaque liquids or gels. These products range from 20% to 35% solids, and consist of resins dissolved in solvents, which may include but are not limited to toluene (CAS No. 108-88-3), n-propyl acetate (CAS No. 109-60-4), methyl ethyl ketone (CAS No. 78-93-3), and/or naphtha (CAS No. 64742-49-0). Many of these products also include up to 10% talc (CAS No. 14807-96-6).

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Product Uses

ADCOTE™ EVA Solvent-Based Heat-Seal Coatings are used in peelable medical and lidding packaging applications or other peelable structures. They are formulated to form heat seals when coated on a variety of substrates, including high-density polyethylene (HDPE), low-density polyethylene (LDPE), polyvinyl chloride (PVC), and aluminum foil.

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Exposure Potential

ADCOTE™ EVA Solvent-Based Heat-Seal Coatings 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 ADCOTE EVA Solvent-Based Heat-Seal Coatings or in the various industrial or manufacturing facilities that use these products. They are produced, distributed, and stored in closed systems. Those working with ADCOTE EVA Solvent-Based Heat-Seal Coatings 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 ADCOTE EVA Solvent-Based Heat-Seal Coatings** – Dow does not sell ADCOTE EVA Solvent-Based Heat-Seal Coatings for direct consumer use, but these products are used in packaging applications, so
consumers may come into contact with them in dried and cured form. Exposure to cured and/or dried product is not considered to present a risk to consumers. Many of these products comply with FDA regulations for food-contact uses. 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. Eliminate all sources of ignition immediately. For small spills, ADCOTE™ EVA Solvent-Based Heat-Seal Coatings should be absorbed with materials such as sand. If released to the environment, the resins will tend to float in water and will be removed in biological wastewater treatment plants by adsorption to biosolids. If released into the environment, the solvents used in these products will exhibit low to high tendencies to volatilize from water. In air, the solvents will degrade within hours to days from exposure to photochemically produced hydroxyl radicals. Since these solvents range from inherently to readily biodegradable, they are expected to be removed from water and soil environments, including biological wastewater-treatment facilities. 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. Eliminate all sources of ignition immediately. Respiratory protection is recommended for cleaning up spills and leaks. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Evacuate personnel and deny any unnecessary entry into the area. Use water spray, carbon-dioxide or dry-powder extinguishers, or foam to fight the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Solvent vapors may travel to a source of ignition and flash back. Keep vapors out of sewers. 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.

**Health Information**

Health information for ADCOTE™ EVA Solvent-Based Heat-Seal Coatings is summarized on the relevant Safety Data Sheets. An overview of health information for these products appears below. It is important to note that health hazards associated with individual products may vary based on their formulation or intended use. These materials may also contain minor components or additives that have additional health hazards which are at levels that are not a risk to consumers. The Safety Data Sheets are the preferred source for specific health information.

- **Eye contact** – The solvents in these products can cause severe eye irritation, conjunctivitis, and corneal opacity.

- **Skin contact** – The solvents can be absorbed through intact skin with the appearance of initial symptoms of inhalation exposure. The solvents can cause moderate skin irritation and reddening, with defatting and drying of the skin that can lead to irritation and dermatitis.

- **Inhalation** – Inhalation of solvent vapor or mist can cause irritation of the nose, throat, and lungs, headache, nausea, drowsiness, dizziness, and slow respiration. Inhalation of high solvent vapor or mist concentrations can cause abdominal pain, unconsciousness, pulmonary edema (fluid in the lung tissue and air spaces), coma, or death.

- **Ingestion** – These products may be harmful if swallowed. The solvents in these products can cause drowsiness, vomiting, nausea, diarrhea, gastrointestinal irritation, and central nervous system effects. Aspiration into the lungs may cause lung injury, pulmonary edema (fluid in the lung tissue and air spaces), and pneumonitis (lung inflammation).

- **Repeated exposure** – Prolonged or repeated overexposure to toluene can cause irritation of the respiratory tract, enlarged liver, kidney effects, or cardiac sensitization. In laboratory testing, increased fetal mortality and delayed fetal development has been observed in offspring of female animals exposed to toluene during pregnancy. Although exposure to talc has shown some evidence of carcinogenic activity in animal studies, it is not considered to be carcinogenic by NTP, IARC, or OSHA.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.
Environmental Information
Environmental information for ADCOTE™ EVA Solvent-Based Heat-Seal Coatings is summarized on the relevant Safety Data Sheets. It is important to note that environmental risks associated with individual products may vary based on their formulation and/or intended use. The Safety Data Sheet is the preferred source for specific environmental information.

The resins in ADCOTE EVA Solvent-Based Heat-Seal Coatings are high molecular weight polymers that are nonvolatile and would be expected to be inert in the environment. If released to soil or water, the resins would likely bind to soil, suspended solids, or sediment. They would be removed by adsorption to biosolids during typical wastewater-treatment processes. Although the resins are essentially nonbiodegradable, they would be expected to degrade slowly in the environment, including degradation by physical action or by exposure to sunlight. Based on data for similar materials, the resins are expected to be practically nontoxic (LC50 >100mg/L) to fish or other aquatic organisms on an acute basis. These resins are not likely to accumulate in the food chain due to their high molecular weight (bioconcentration potential is low).

If released to the environment, the solvents in these products would likely evaporate to the atmosphere. The solvents are unlikely to persist in the environment, and would be removed by biological wastewater-treatment facilities. The solvent components of these products are moderately toxic (EC/LC50 ≥6.56 mg/L) to aquatic organisms on an acute basis.

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

Physical Hazard Information
ADCOTE™ EVA Solvent-Based Heat-Seal Coatings contain solvents that require strict adherence to recommended storage, handling, and firefighting procedures. These products are extremely flammable. Keep containers tightly closed in a well-ventilated area away from sources of heat and ignition. Containers may be hazardous when empty. Provide sufficient air ventilation when handling.

Vapors are heavier than air and may travel to a source of ignition and flash back. Heated material may form flammable or explosive mixtures with air. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat. 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 ADCOTE™ EVA Solvent-Based Heat-Seal Coatings. 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 Safety Data Sheets and Technical Data Sheets from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
  - ADCOTE™ 33P11 Heat-Seal Coating [Technical Data Sheet], Rohm and Haas Company, May 2006
  - ADCOTE™ HS 33-206 Heat-Seal Coating [Technical Data Sheet], Rohm and Haas Company, June 2007
  - ADCOTE™ HS 33-193 Heat-Seal Coating [Technical Data Sheet], Rohm and Haas Company, October 2008
  - ADCOTE™ HS 33-226 Heat-Seal Coating [Technical Data Sheet], Rohm and Haas Company, January 2012
  - ADCOTE™ HS 33R2B Heat-Seal Coating [Technical Data Sheet], Rohm and Haas Company, May 2007
- Contact Us (www.dow.com/assistance/dowcig.htm)

For more business information about ADCOTE™ EVA Solvent-Based Heat-Seal Coatings, visit the Dow Packaging Products website at www.dow.com/products/market/packaging/product-line/adcote/.
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NOTICES

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