Product Safety Assessment

**BETASEAL™ Glass Primers**

**BETAPRIME™ Glass Primers**

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Names

- BETASEAL™ glass primer
- BETASEAL 43518 glass primer
- BETASEAL 43520A glass primer
- BETASEAL 43527 glass primer
- BETASEAL 16100A One-Step primer
- BETAPRIME™ glass primer

**Product Overview**

- BETASEAL™ and BETAPRIME™ glass primers are surface preparatory adhesion promoters used in conjunction with BETASEAL adhesives in automotive manufacturing and windshield replacement/repair. They are colorless or black liquids formulated from polyurethanes or silane compounds in an organic solvent (e.g. toluene, methyl ethyl ketone, heptane, or methanol depending on the sales region). BETASEAL and BETAPRIME glass primers are manufactured by Dow Automotive, a business unit of The Dow Chemical Company. For further details, see Product Description.

- BETASEAL and BETAPRIME glass primers are used during windshield glass installation in vehicle manufacturing and during windshield replacement/repair. These primers prepare the surface of windshield glass or the vehicle body so a good adhesive bond will form. For further details, see Product Uses.

- BETASEAL and BETAPRIME glass primers are for industrial use only. Worker exposure is possible in a manufacturing facility or at facilities using these primers. Exposure is minimized through engineering controls and the use of personal protective equipment. In vehicle production, these primers are applied to glass or the vehicle body. When dried, they are permanently sealed between the glass and vehicle body (or flange). For further details, see Exposure Potential.

- Eye contact with these primers causes moderate to severe irritation with corneal injury. Eye contact with product vapors may cause lacrimation (tears). Prolonged skin contact may cause redness and irritation along with drying and flaking. Products containing high concentrations of methanol (45–55%) can be absorbed through the skin causing harm. Because these primers are solvent-based, hazardous vapor concentrations are attainable. Excessive vapor inhalation may cause irritation to the nose and throat, progressing to dizziness and...
drowsiness or unconsciousness. These materials can result in damage if aspirated into the lungs. For further details, see Health Information or Physical Hazard Information.

- **BETASEAL™** and **BETAPRIME™** glass primers are flammable liquids and release flammable vapors. The vapors are heavier than air and can travel long distances accumulating in low-lying areas. Ignition or flashback could occur. Avoid static discharge. Avoid contact with acids, bases, and oxidizers. For further details, see Physical Hazard Information.

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**Manufacture of Product**

- **Capacity** – Dow Automotive manufactures BETASEAL™ and BETAPRIME™ glass primers in the following locations: Midland, Michigan (USA) and Schkopau, Germany.
- **Process** – BETASEAL and BETAPRIME glass primers are formulated using proprietary Dow Automotive materials and technology.

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**Product Description**

BETASEAL™ and BETAPRIME™ glass primers are surface preparatory adhesion promoters used with the BETASEAL Bonding System in automotive manufacturing. Dow Automotive manufactures two types of these primers: a silane blend in a solvent base and a polyurethane-based blackout primer. Both are liquid formulations. Silane blend primers are base-coat primers meant to be used in conjunction with a suitable blackout primer. A blackout primer is a solvent-release type primer designed to screen out ultraviolet rays and promote adhesion between the polyurethane adhesive and glass. BETASEAL and BETAPRIME polyurethane-based blackout primers are applied to the silane-primed surface prior to adhesive application.

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**Product Uses**

BETASEAL™ and BETAPRIME™ glass primers are used in vehicle manufacturing during windshield glass installation and during windshield replacement/repair. These primers prepare the surface of windshield glass or the vehicle body so a good adhesive bond will form. In addition to windshields, BETASEAL and BETAPRIME glass primers are used on backlites, quarter glass, sunroof assemblies, and other stationary auto glass prior to adhesive application.

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**Exposure Potential**

BETASEAL™ and BETAPRIME™ glass primers are used in the production of vehicles and windshield replacement/repair operations. Based on the uses for these primers, the public could be exposed through:

- **Workplace exposure** – Exposure can occur in an automotive manufacturing facility or during windshield replacement/repair. Those working with these primers in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each facility or company that uses these products should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. See Health Information.
- **Consumer exposure to products containing BETASEAL™ or BETAPRIME™ glass primers** – Dow Automotive does not sell these primers for home use. Based on their widespread use in vehicle production, it is possible that consumers might operate a vehicle
manufactured with them. By the time the vehicle reaches the consumer, the primer has fully dried and exposure risks are very low. See Health Information.

- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Respiratory protection is necessary for cleaning up spills and leaks. Eliminate all sources of ignition immediately. For small spills, these primers should be absorbed with materials such as sand, sawdust, or cat litter. 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 material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. If available, use foam to smother or suppress vapor. Positive-pressure, self-contained breathing apparatus (SCBA) with a full-face mask approved by NIOSH is recommended for emergency work. Eliminate all sources of ignition immediately. Use only explosion-proof equipment; ground and bond all containers and handling equipment. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Deny any unnecessary entry into the area. Use a water fog or fine spray, carbon-dioxide or dry-chemical fire extinguishers, or foam. Use of a direct water stream may spread the fire. Polyurethane-based primers react with water. The reaction may produce heat or gases. The public should be warned of downwind vapor-explosion hazards. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Keep vapors out of sewers. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, see the relevant Safety Data Sheet.

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**Health Information**

**Eye and skin contact** – Eye contact with these primers causes moderate to severe irritation with corneal injury. Eye contact with product vapors may cause mild discomfort and redness and watery eyes (lacrimation). Prolonged skin contact may cause redness and irritation along with drying and flaking. Prolonged or repeated skin contact with products containing high concentrations of methanol (45–55%) can be absorbed through the skin causing harm. Polyurethane-based primers contain a component that has been shown to be a skin sensitizer and may cause an allergic skin reaction.

**Inhalation** – Because these primers are solvent-based, hazardous vapor concentrations are easily attainable. Excessive vapor inhalation may cause irritation to the upper respiratory tract (nose and throat), progressing to dizziness and drowsiness or unconsciousness, even death. May cause nausea and vomiting. Overexposure to methanol, a component of some primers, can also cause abdominal discomfort and diarrhea, headache, visual impairment, and metabolic acidosis, progressing to blindness or death. Polyurethane-based primers contain a component at very low concentrations that may cause an allergic respiratory response. Asthma-like symptoms may include coughing, difficulty breathing, and a feeling of tightness in the chest. Repeated exposure to extremely low isocyanate concentrations may cause allergic respiratory reactions in individuals who are already sensitized.

**Ingestion** – Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing large amounts may cause serious injury, even death. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or death due to chemical pneumonia. Methanol, a component of some primers, is highly toxic to humans and may cause central nervous system effects, visual impairment up to blindness, metabolic acidosis, and degenerative damage to other organs.

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Repeated exposure – In animals, components of these primers have caused adverse effects to the following organs after repeated exposure: the nose, central nervous system, eyes, liver, kidney, and heart. Toluene has caused hearing loss in animals exposed to high concentrations. For more information, see the relevant Safety Data Sheet.

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Environmental Information

BETASEAL™ and BETAPRIME™ glass primers are blends of components. This is an overview of the environmental impact of major components. Specific product information is available on the Safety Data Sheet.

**Methyl Ethyl Ketone** – Methyl ethyl ketone is expected to be highly biodegradable and is not expected to accumulate in the food chain (bioaccumulation potential is low). This material is practically nontoxic to fish and other aquatic organisms on an acute basis (single exposure to a high concentration).

**Toluene** – Toluene is readily biodegradable and is not expected to accumulate in the food chain. Toluene is moderately toxic to aquatic organisms on an acute basis.

**Methanol** – Methanol is readily biodegradable and is not expected to accumulate in the food chain (bioaccumulation potential is low). Methanol is practically nontoxic to fish and other aquatic organisms on an acute basis (single exposure to a high concentration).

**n-Butyl Acetate** – This material is readily biodegradable and is not expected to accumulate in the food chain. n-Butyl acetate is slightly toxic to fish and other aquatic organisms on an acute basis.

**(3-Mercaptopropyl)trimethoxysilane** – This material is considered highly biodegradable and is not expected to accumulate in the food chain (bioaccumulation potential is low). It is moderately toxic to aquatic organisms on an acute basis.

**Carbon Black** – Carbon black is practically nontoxic to aquatic organisms on an acute basis.

**Polyester** – Polyester is not expected to be biodegradable. Due to its relatively high molecular weight, it is not expected to accumulate in the food chain. Polyester is not expected to be acutely toxic to aquatic organisms.

For more information, see the relevant Safety Data Sheet.

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Physical Hazard Information

BETASEAL™ and BETAPRIME™ glass primers are flammable liquids and release flammable vapors. The vapors are heavier than air and can travel long distances accumulating in low-lying areas. Ignition or flashback could occur. Store primers indoors in a dry place, in tightly closed, properly vented containers. Store primers out of direct sunlight. Minimize sources of ignition such as static build-up, heat, spark, or flame. Exposure to elevated temperatures can cause these products to decompose. Avoid contact with acids, bases, and oxidizers.

Polyurethane-based primers contain isocyanate compounds, which are incompatible with acids, alcohols, amines, water, ammonia, bases, and strong oxidizers. Chemical reactions could occur. The rate of reaction increases with increased temperature and increased contact. Contact is
increased by stirring. Diisocyanates are not soluble in water and sink to the bottom, but react slowly at the water/solvent interface. The reaction forms carbon dioxide and heat, which causes pressure build-up in closed containers.

For more information, see the relevant Safety Data Sheet.

**Regulatory Information**

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of BETASEAL™ and BETAPRIME™ glass primers. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet or the Dow Customer Information Group.

**Additional Information**

- Contact Dow Automotive ([http://automotive.dow.com/automotive/after/contact/index.htm](http://automotive.dow.com/automotive/after/contact/index.htm))
- Dow Customer Information Group ([http://www.dow.com/assistance/dowcig.htm](http://www.dow.com/assistance/dowcig.htm))
- BETASEAL 43519, Technical Data Sheet, Dow Automotive, Form No. 07/19/01/50306, July 19, 2001 (Contact the Dow Customer Information Group at: [http://www.dow.com/assistance/dowcig.htm](http://www.dow.com/assistance/dowcig.htm) to obtain this document)
- BETASEAL 43520A, Technical Data Sheet, Dow Automotive, Form No. 07/19/01/299/50308, July 19, 2001 (Contact the Dow Customer Information Group at: [http://www.dow.com/assistance/dowcig.htm](http://www.dow.com/assistance/dowcig.htm) to obtain this document)

For more business information about BETASEAL or BETAPRIME™ glass primers, visit the Dow Automotive website ([www.automotive.dow.com](http://www.automotive.dow.com)) or Dow’s Customer Information Group website at ([http://www.dow.com/assistance/dowcig.htm](http://www.dow.com/assistance/dowcig.htm)).

**References**

8. BETASEAL™ 43519, Technical Data Sheet, Dow Automotive, Form No. 07/19/01/50306, July 19, 2001, page 1.

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