

## Product Safety Summary

### Ultraform® Polyoxymethylene

This Product Safety Summary is intended to provide a general overview of the chemical substance, its use, potential hazards, exposure and how to manage any risk. The information on the Summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

#### Chemical Identity

Abbreviation:	POM
CAS Number:	24969-26-4
Common Names:	Polyoxymethylene Polyoxymethylene copolymer Acetal Polyacetal

#### Product Overview

- Ultraform® Polyoxymethylene is an engineering thermoplastic used in applications that require outstanding performance. It provides excellent resistance to fuels and chemicals, low swelling, good long-term thermal stability and good electric insulation capacity.
- It is sold as a small plastic pellet and used by product manufacturers to injection mold or extrude plastic parts. It can be colored in order to suit the end application.
- Example applications include gas filler caps, tank level sensors, gasoline pump housings and parts, valves, seat-belt release buttons, windshield wiper clips, loudspeaker grilles, suspension stabilizer links, levers and rods, sun roof frames, ball sockets, roll-over valves and wash nozzles. Many grades of Ultraform® POM are safely used in food contact articles such as food processors and espresso machines.
- When this product is heated to high temperatures in order to produce a molded or extruded part, small amounts of formaldehyde gas is given off. The release of formaldehyde during the manufacture of parts made from Ultraform® POM is the primary concern. Formaldehyde gas can cause irritation to the eyes, nose, mouth and throat. It may also cause respiratory sensitization, in which subsequent exposures may cause an allergic inflammatory reaction. Formaldehyde is also known to cause cancer after long term exposure.
- Plastic parts made from Ultraform® POM that are used in automobiles and other applications do not present a risk from exposure to formaldehyde, since the parts are no longer heated to high enough temperatures to produce formaldehyde.
- The Occupational Safety and Health Administration have instituted a specific standard governing the practices to be used when formaldehyde is present in the workplace. This regulation can be found at 21 CFR 1910.1048. This standard provides requirements for exposure monitoring, training, signage, methods for controlling exposures and other practices in order to assure that employees are protected. OSHA has established an action level of 0.5 ppm for formaldehyde, a short term exposure limit of 2 ppm and an 8 hour time weighted average limit of 0.75 ppm. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for formaldehyde is a ceiling value of 0.3 ppm.

- For further safety and health information, refer to the current Material Safety Data Sheet (MSDS) for Ultraform® POM (See the link at the end of this Product Safety Summary)

### **Physical/Chemical Properties**

- The product is sold as a solid plastic pellet. It is typically either opaque/uncolored or black, although it may be colored during manufacturing processes.
- Polyoxymethylene has a melting point of approximately 164°C.
- Ultraform® POM will burn if exposed to open flame.
- The product is odorless, although a small amount of formaldehyde may be noticed when a box of pellets are first opened.

### **Health Information**

#### Acute Hazards

Ultraform® POM itself is not hazardous. During melting in order to extrude or mold plastic parts formaldehyde gas can be formed. Formaldehyde gas is irritating to the eyes, nose, mouth, throat and lungs.

#### Effects on Respiratory System:

Exposures to the formaldehyde vapors can irritate the respiratory system. Formaldehyde can also cause respiratory sensitization, where upon after initial exposures an allergic type response can occur to subsequent exposures.

#### Effects on Eyes:

Formaldehyde vapor can cause eye irritation. Some dust can form when processing Ultraform® POM plastic pellets. This dust can irritate the eyes in the same manner that any dust could.

#### Effects on Skin:

Formaldehyde vapor is not known cause irritation or any effects to the skin. The melted plastic from processing Ultraform® POM will cause burns if exposed to skin.

#### Effects on Ingestion:

There are no known effects from accidental ingestion Ultraform® POM pellets.

#### Chronic Hazards

Long term overexposure to formaldehyde vapors is known to cause a rare form of cancer within the nasal area, called nasopharyngeal cancer.

#### Sensitization

Sensitization is an affect whereby a physiological response is caused by re-exposure to a very low concentration of chemical in an individual following higher, initial acute exposure or following chronic exposures. The response may be immediate, delayed or both. Formaldehyde may cause respiratory system sensitization. The PEL values and ceiling limits should be sufficiently low to prevent sensitization in most individuals. However, allergic reactions may occur in sensitized individuals at concentrations well below these values. Once sensitized, individuals should be excluded from further exposure. Responses in sensitized individuals vary considerably from one individual to another.

**Environmental Information**

Ultraform® POM is not known to cause any harm to the environment.

This product must be disposed of in accordance with national, state and local regulations. The product is generally considered non-hazardous waste and can be disposed of in most municipal waste.

**Additional Hazard Information**

- Ultraform® POM will decompose quickly if exposed to acidic materials during melting/extruding. Therefore PVC or other halogenated materials such as brominated or chlorinated flame retardants must not be processed such that they will get mixed with this product. If this occurs, large amounts of formaldehyde will be formed.

The following safety recommendations must be observed:

- Be sure that PVC and other materials such as halogenated flame retardants are not processed immediately before or after POM unless careful cleaning of the machine is done.
- Do not overheat POM, as this will increase the formation of formaldehyde.
- Maintain adequate ventilation in all work areas to control to the ACGIH TLVs/OSHA PELs.

**Exposure Potential**

Exposure to formaldehyde vapors can occur to production employees using this product. Small amounts of formaldehyde may be trapped in the headspace of boxes of Ultraform® POM. Employees who are extruding or molding this product may also be exposed to formaldehyde vapors. Exposures are very low as long as the product is processed under appropriate temperature and pressure conditions, not exposed to any acidic materials as described above, and appropriate ventilation is provided. Employees should be well trained in the use of this product.

Consumers who are using the plastics articles produced from Ultraform® POM should not be exposed to formaldehyde vapors since the material has already cooled and completely cured.

**Risk Management**

Workers handling Ultraform® POM can safely work with this material if adequately instructed and educated regarding proper handling procedures.

As long as the appropriate processing conditions are used during molding and extruding and ventilation is provided at the extruder and mold, the level of formaldehyde should be maintained at very low levels and the risk for any health effects should be very low.

Workers should be carefully trained to understand the risk of formaldehyde exposure, including irritation. Appropriate emergency procedures must be in place including a process for emergency shut down of equipment and emergency evacuation of employees should the material be improperly processed such that extreme degradation occurs releasing formaldehyde vapors.

Consumers using products made from Ultraform® POM are not at risk to health effects.

**Federal/Science Findings**

U.S. Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov/pls/oshaweb/formaldehydestd>

American Conference of Governmental Industrial Hygienists (ACGIH)

<http://www.acgih.org>

National Institute for Occupational Safety and Health (NIOSH)

<http://www.cdc.gov/niosh/topics/formaldehyde/>

Agency for Toxic Substances and Disease Registry (ASTDR)

<http://www.atsdr.cdc.gov/toxprofiles/tp111.html>

Organization for Economic Cooperation and Development (OECD)

<http://www.chem.unep.ch/irptc/sids/OECDIDS/FORMALDEHYDE.pdf>

**Contact Information**

<http://www.basf.com>

**MSDS**

<http://worldaccount.basf.com/wa/PublicMSDS/Search>

**References**

BASF Ultraform POM Product Brochure:

<http://www2.basf.us//PLASTICSWEB/displayanyfile?id=0901a5e1800bc1a7>

**IMPORTANT:** While the data and information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. No warranties of any kind, either express or implied, are made regarding the data or information provided. Further, it is expressly understood that the data and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability for the data and information given, all such data and information being given and accepted at your risk.