

General information

Safety notes

Safety precautions during processing

Ultraform® decomposes when subjected to excessive heat. The decomposition products formed in this case consist essentially of formaldehyde, a gas which has a pungent smell even at very low concentrations and irritates the mucous membranes. Decomposition can rapidly result in the build-up of a high gas pressure in the barrel of the processing unit.

If the die is sealed there may be a sudden release of pressure via the filling hopper. If the dies and filling opening are blocked there is a risk that, as a result of the rising gas pressure in the barrel, the bolts between the barrel and the barrel head on the one hand or between the cylinder head and die on the other hand will shear and endanger human life. It is therefore essential to check the correct operation of the measurement and control devices before the processing machine is started up. Fully automatic systems must be capable of early detection and elimination of technical malfunctions in the processing machine.

When Ultraform® is properly processed, as a rule, only very little formaldehyde appears in the area of the processing equipment. In contrast, if the melt is severely or especially improperly stressed, for example, due to processing at an excessively high temperature and/or with a long residence time of the melt in the processing machine, a stronger formaldehyde odor can be the result. In case of such an operational malfunction, which is also noticeable in the form of brownish burn streaks on the molded parts, the cylinder of the processing machine should be flushed by spraying the melt outside. At the same time the barrel temperature must be reduced. Nuisances caused by odors can be prevented by cooling the damaged material in a water bath.

Measures should be taken to ensure ventilation and venting of the work area, preferably by means of an extraction hood over the barrel unit.

Gas sampling devices for monitoring the country-specific occupational exposure limits for formaldehyde are available on the market.

Contamination of Ultraform® by thermoplastics that cause decomposition of polyacetals, e.g. PVC or plastics containing halogenated fire protection agents, must be avoided under all circumstances. Even small quantities can cause uncontrolled and rapid decomposition of the Ultraform® during processing.

Pellets and finished parts must not be allowed to come into contact with strong acids (especially concentrated hydrochloric acid) since they cause Ultraform® to decompose.

Biological action

No detrimental effects to people engaged in the processing of Ultraform® have come to light when the material has been correctly processed and the work areas have been well ventilated.

The country-specific occupational exposure limits for formaldehyde must be observed.

Food legislation

The uncolored standard-grades of our Ultraform® product line (e.g. N2320 003, N2320 FC Aqua®, S2320 003, S2320 FC Aqua®, W2320 003, H2320 006, H4320) are in conformity with the current regulations for food contact in Germany, Europe and the USA with respect to their composition. Registered users can download compliance letters for these and other products at BASF's internet site www.plastics-portal.com. In case of detailed information about the food contact status for a certain standard grade, a coloured Ultraform® or a special grade please contact BASF (plastics.safety@basf.com) directly. We are pleased to send you a food contact compliance letter with respect to the regulations in force at present.

Quality and environmental management

Quality and environmental management are central to BASF's policy. A key aim is customer satisfaction. Making continuous improvements to our products and services in terms of quality, the environment, safety and health is important.

BASF's business unit Engineering Plastics Europe uses a quality and environmental management system which has been certified by the German Association for the Certification of Management Systems (DQS):

- Quality management system in accordance with ISO 9001 and ISO/TS 16949
- Environmental management system in accordance with ISO 14001.

The certification covers all the services that the business unit delivers for the development, manufacturing, marketing, and distribution of engineering plastics. Regular internal and external audits and training measures for staff ensure that the management systems work properly and are constantly developed further.

Delivery and storage

Ultraform® is supplied in the form of granules having a bulk density of approx. 850 g/l. Standard packs are the 25-kg PE bag and the 1,000 kg bulk (octagonal IBC, container made of corrugated card board with insertable sack). After prior arrangement, transportation in silo wagons is possible.

Ultraform® is not subject to change when it is stored in dry, ventilated rooms. After relatively long storage (> 1 year) or when handling material from previously opened containers, preliminary drying is recommended in order to remove any moisture which has been absorbed.

Ultraform® and the environment

Ultraform® is not a hazardous material as defined in the CLP ordinance (EG) No. 1272/2008. When kept away from sunlight, Ultraform® can be stored in contact with air at temperatures of up to 40 °C for several years without change. If Ultraform® is exposed to strong sunlight, signs of decomposition in the form of reduced molecular weight and brittleness cannot be excluded.

All Ultraform® grades can be incinerated in accordance with local authority regulations.

Ultraform® is assigned as not hazardous to water.

Carbon dioxide and water are the products of the complete combustion of Ultraform®. When combustion is incomplete, traces of formaldehyde and carbon monoxide may be produced. Further information can be obtained in the product-specific safety data sheets.

Recycling

Waste materials, e. g. Ultraform® moldings and sprue, can be recycled provided the polymer is clean and has not been thermally degraded. After relatively long storage, the ground material should be dried before being returned to reprocessing. The maximum permissible proportion of ground material depends on the dimensional and mechanical requirements imposed on the moldings and must be determined in trials. Further information in section "Reprocessing".

Nomenclature

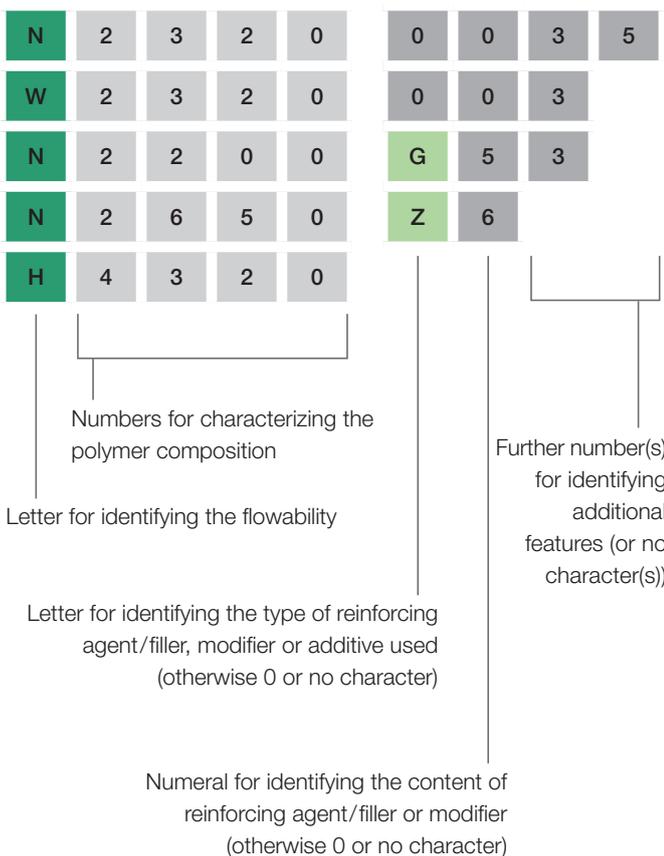
Structure

The name of Ultraform® commercial products generally follows the scheme below:



Technical ID

The technical ID is made up of a series of letters and numbers which give hints about the melt flow rate, the type of reinforcing agents, fillers, modifiers or additives used, their content in the material and special features if applicable. The following classification scheme is found with most products:



Letters for identifying the melt flow rate

The melt flow rate corresponds to the position of the letters in the alphabet: The later the letter appears in the alphabet, the higher the melt flow rate. Usually one of the letters E, H, N, S, W or Z is used. The following rule applies:

- E Lowest flow rate, lowest MVR value
- Z Highest flow rate, highest MVR value

Letters for identifying the type of reinforcing agent, filler, modifier or additive used

- E Impact-modified with rubber
- G Glass fibers
- K Chalk
- L Conductive carbon black
- M Mineral
- P Special lubricant
- U UV-stabilized
- Z Impact-modified with thermoplastic polyurethane

Characteristic numbers for describing the content of reinforcing agents, fillers or modifiers

The numbers 2, 4, 5, 6 and 9 are usually found. The greater the number, the higher the content. The following rule applies:

- 2 approx. 10% by mass
- 4 approx. 20% by mass
- 5 approx. 25% by mass
- 6 approx. 30% by mass
- 9 approx. 45% by mass

Suffixes

Suffixes are optionally used in order to indicate specific processing or application-related properties. They are frequently acronyms whose letters are derived from the English term.

Examples of suffixes:

- Aqua® Meets specific regulatory requirements for drinking water applications
- FC Food Contact; meets specific regulatory requirements for applications in contact with food
- LEV Low Emission Version; low in odors
- PRO Profile Covered Raw Materials Only; meets specific regulatory requirements and needs for medical applications

Color

The color is generally made up of a color name and a color number.

Examples of colors:

- Uncolored
- Black 00120
- Black 00140 (in the case of products that are modified with thermoplastic polyurethane)
- Black 00160 (in the case of products that are modified with rubber)