

DON'T WORRY, BE GLOSSY!

ULTRAMID® DEEP GLOSS – THE POLYAMIDE FOR
HIGH GLOSS IN AUTOMOTIVE INTERIORS



 **BASF**

We create chemistry

DEEP GLOSS

Ultramid® Deep Gloss

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Ultramid® Deep Gloss

THE POLYAMIDE FOR HIGH GLOSS IN AUTOMOTIVE INTERIORS

Reflecting surfaces, shiny fittings, and automotive interiors with a deep black sheen: High-gloss surfaces attract attention wherever they are. The technical requirements for the materials necessary to produce these components are high.

Ultramid® Deep Gloss is BASF's new specialty polyamide for shiny components in automotive interiors. It shows a balanced property profile for components which are high-gloss and yet at the same time resistant without any coating:

- high gloss level
- good long-term performance
- high chemical resistance
- low emissions
- good UV resistance

Ultramid® Deep Gloss offers interesting potentials

- processing in just one single step
- no painting required
- combination of shiny and haptic elements in one component
- more design freedom compared to painted applications
- simple injection molding without variothermal temperature control

Ultramid® Deep Gloss

LET YOUR CAR INTERIOR SHINE

New designs for a variety of applications

There is a great demand for surfaces with a piano-black look in car interiors. It is to be expected that the percentage of high-quality, partially functionalized surfaces will continue to increase. This trend is being pushed by new types of operating concepts following the transition to autonomous driving.

Thanks to its balanced property profile, Ultramid® Deep Gloss is the ideal material for:

- decorative trims, e.g. display edgings
- decorative panels around lights
- storage racks in headliners
- functional components, e.g. air vents
- inlays in car doors or center consoles

In addition to the piano-black look, contrasting colors and color trends are possible to meet individual customer needs. Ultramid® Deep Gloss has been developed primarily to meet the requirements for automotive interiors. But it is also suitable for manufacturing components with similar requirement profiles in the consumer goods sector.



Ultramid® Deep Gloss

THE IDEAL COMBINATION OF GLOSSINESS AND CHEMICAL RESISTANCE

Amorphous materials have a high gloss level and are therefore used in many everyday products. When there are high demands on the permanent preservation of the surface properties, they generally have to be coated as the original level of chemical resistance and the resistance to scratching and abrasion are not sufficient. Semi-crystalline polyamides, however, have excellent chemical resistance but not the necessary gloss and resistance to scratching required for applications demanding maximum surface quality.

BASF has many years of experience and extensive knowledge of formulating polyamides for the automotive industry and the consumer goods sector. With Ultramid® Deep Gloss it has succeeded in developing a special polyamide alloy which combines the chemical resistance of semi-crystalline polyamides with the high-gloss and the depth of view that are typical of amorphous materials.

Special additives provide the continuous-use properties required for high-quality surfaces, such as resistance to scratching and abrasion as well as sufficiently high UV resistance. Compared to other, uncoated high-gloss materials, Ultramid® Deep Gloss impresses with its outstanding abrasion resistance.

In addition, the strict requirements of the automotive industry regarding emissions and odors were taken into account during the development.

Stability of Ultramid® Deep Gloss in interior weathering:

Accelerated weathering test (Indoor, acc. to DIN75202)	4 Cycles (280 h)	6 Cycles (420 h)
Color change ΔE	0.3	0.7
Greyscale	4 – 5	4
Gloss 20° (gloss units)	94.3	74.8
Gloss retention (20°)	101 %	80 %

Tested chemical resistance of Ultramid® Deep Gloss:

- sunscreen
- hand lotion
- perspiration
- ethyl alcohol
- plastic cleaner
- window cleaner
- cockpit care product
- soapy water
- leather care products

Ultramid® Deep Gloss

BRILLIANT PERFORMANCE EVEN UNDER CHALLENGING CONDITIONS

The mechanical properties of Ultramid® Deep Gloss at a glance:

Property	Value (dry / cond.)
Melting temperature	220 °C
Moisture absorption (23 °C, 50 % r.h.)	2.5 – 3.0 %
Young's modulus	3150 / 1150 MPa
Tensile strength at yield	80 / 44 MPa
Elongation at yield	3.9 / 21 %
Charpy notched +23 °C	5 / 20 kJ/m ²
Charpy notched -30 °C	4.6 / n.d. kJ/m ²
Puncture test -30 °C, total work (ISO 6603-2/40/20/c, 2 mm)	10 J
HDT A	68 °C
HDT B	178 °C
Ball indentation hardness (358 N, 30 s) acc. to ISO 2039-1	142 / 59 MPa

Characteristics for gloss, scratch and abrasion resistance and for the emission behavior of Ultramid® Deep Gloss:

Property	Value
Gloss 20°	90 gloss units
Gloss 60°	95 gloss units
Erichsen Scratch Test:	
acc. to PV3952, 10 N, needle Ø 1 mm	ΔL = 0.1 (acc. to DIN 5033-4) (scratch depth: 0.87 μm)
acc. to DBL9202, 10 N, needle Ø 1 mm	O.K. (visual assessment)
acc. to GS93045-9, 5 N, needle Ø 0.75 mm	assessment index: 2A
Crockmeter Test:	
acc. to PV3987, 5 double strokes, 9 N, polishing paper	Gloss retention 68 % (angle 20°)
acc. to DBL9202, 200 double strokes, 9N, wool felt	Grade A-
VOC (acc. to VDA 277)	< 20 ppm
Odor (acc. to VDA 270)	3 – 3.5

Ultramid® Deep Gloss

A BRIGHT CONCEPT FOR NEW DESIGN IDEAS

Ultramid® Deep Gloss reproduces structures true to detail. Thus, the material enables an interplay of light and shadow high in contrast. This provides designers with new opportunities to combine unusual textures with new levels of emotion. Surfaces can also be structured by haptic design elements. With suitable sensor technology, this allows integrated, functionalized designs. Examples of specially matched emotional and functional textures can be found on the back of the demonstrator component made from Ultramid® Deep Gloss.

GROOVES

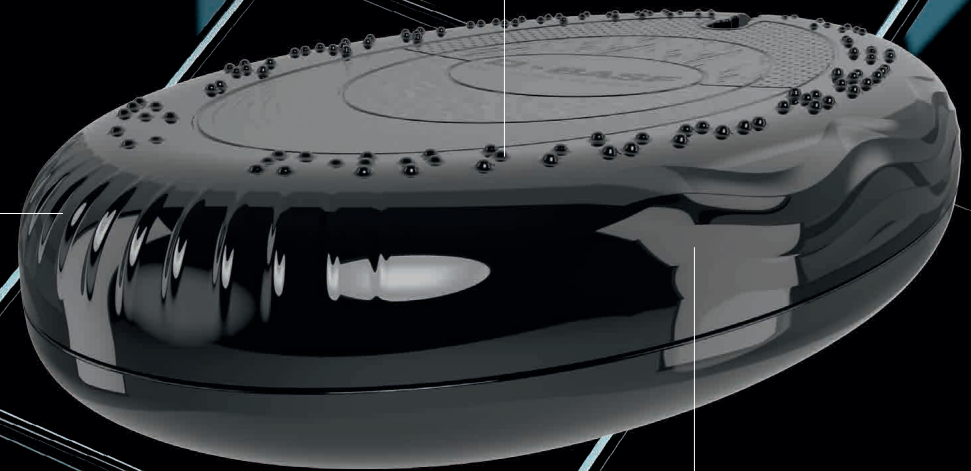
provide tactile feedback, e.g. about a position for controlling functions

BRAILLE

enables a new group of people to enjoy independent mobility with autonomous driving (example: "BASF - We create chemistry")

RIPPLES

activate the senses through visual and haptic stimuli inspired by nature



WAVES

robust surface texture with emotional interplay of light and shadow

SMALL DOT

smart casual, timeless and yet robust texture

HAMMER FINISH

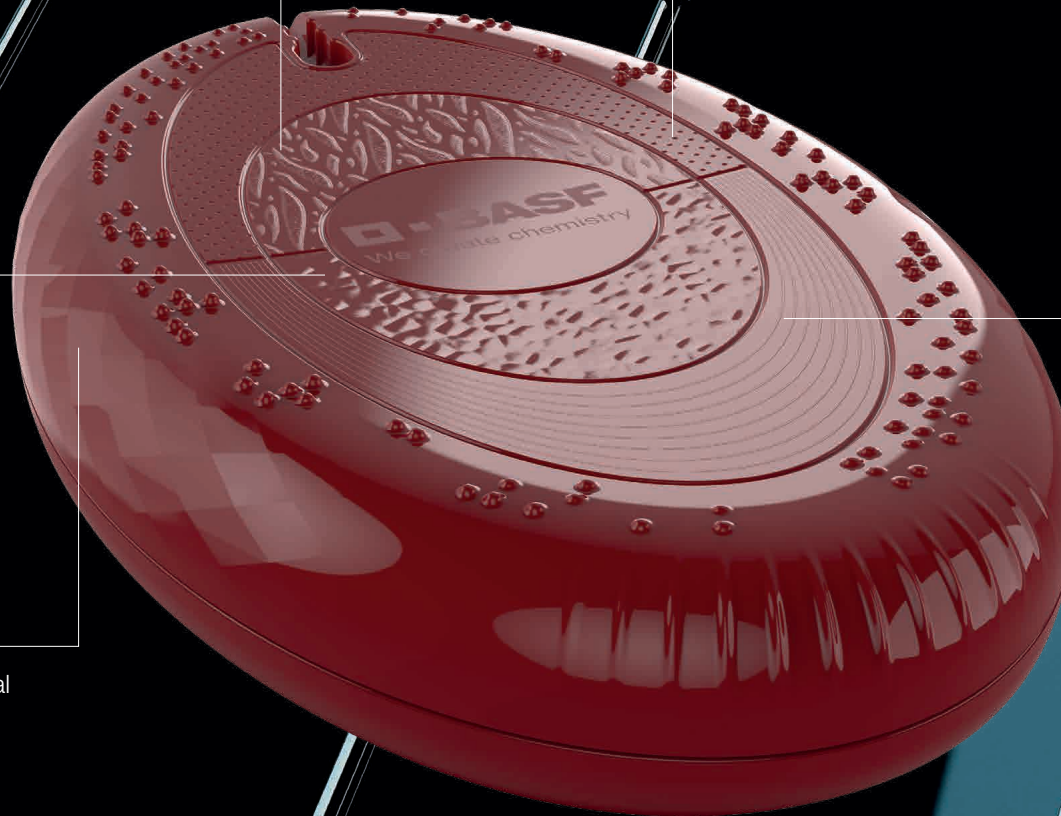
individual impression together with robustness

LINES

finest hairlines divide up surfaces to localize functional areas

DIAMONDS

inspire by elegant visual and haptic stimuli



Multiply your design

ADVICE BEYOND THE MATERIAL

In view of ever shorter innovation cycles, efficient cooperation between BASF and its customers is becoming more and more important. Depending on the type of project, the material advice of the designfabrik® will be offered hand in hand with the Ultrasim® simulation package and the know-how of BASF trend scouts in order to give customers specific support with innovative solutions.



designfabrik®: support in every phase of the design process

BASF supports customers intensively with product development or material substitution. The designers and engineers of the designfabrik® are available to act as a strategic consulting partner for design-oriented sectors. They can help with questions relating to plastic-optimized design, suitable processing methods and tools, surfaces as well as form and function. In addition, pigment specialists help to implement color ideas to the exact specification.

Ultrasim®: precise component design

BASF's Ultrasim® simulation tool is used in the design of components from all industries. As well as accurately predicting the component behavior as a function of manufacturing parameters and the loading direction or loading speed, mathematical component optimization makes it possible to identify the best possible design. Ultrasim® is thus a unique instrument which allows customer components to be optimized to suit the load situation at a very early stage. Thanks to the accurate predictions, costs and time associated with prototypes or extensive corrections to molds can be avoided.



Individual colors can be adjusted while retaining the beneficial properties of Ultramid® Deep Gloss.



Further information on Ultramid® Deep Gloss
can be found on the internet:
www.ultramid-deepgloss.basf.com

Please visit our websites:
www.plastics.basf.com
www.plastics.basf.de

Request of brochures:
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If you have technical questions on the products,
please contact the Ultra-Infopoint:



Note

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COLOR UP YOUR IDEAS