



PANADUR

coating your ideas



Technical Data Sheet
PANADUR FAST METAL

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PANADUR FAST METAL

PANADUR FAST METAL is a solvent-free, high-gloss topcoat. It is ideal as a long lasting coating for metal surfaces which are constantly exposed to chemicals and corrosion. The material also provides UV resistance, good filling capacity, high tensile strength and hardness that can be customized to suit your needs. PANADUR FAST METAL is a premium product of the PANADUR polyurea series.

Product Benefits

- UV resistant, i.e. no additional UV protective coating necessary
- Light-fast
- High chemical resistance
- High mechanical strength
- Short curing time
- Rapid subsequent workability
- Solvent free
- Individually customisable hardness

Range of Applications

PANADUR FAST METAL is a versatile coating material for e.g. metal surfaces, which are particularly distinguished by its durability and corrosion protection. It may also be applied to stainless steel (chrome-nickel) and aluminium surfaces when used with a suitable PANADUR Primer.

Technical Data

Processing method	2K systems with variable mixing ratio or by hand with brushes (note the time frame for handling)
Mixing ratio	See label on container
Processing temperature range	10 to 35 °C ambient temperature (non-condensing, relative humidity < 90 %, at least 3 °C above dew point, note dew point chart)
Permissible surface temperature for application	10 to 30 °C (in order to avoid condensation, keep as close to ambient temperature as possible)
Permissible surface temperature during processing	20 to 70 °C (both components alike)
Consumption component mixture	Approx. 1.7 kg/m ² (with a film thickness of 1.5 mm, depending on the substrate)
Minimum film thickness	1500 – 3000 µm (depends on specific use)
Shelf life	At least 6 months (applies to unopened original containers at 5 – 30 °C; protect from lower temperatures, direct sunlight, humidity; store upright and tightly sealed)
Density of PANADUR FAST METAL component (DIN EN ISO 1183-3 at 23 °C, depends on color)	1.0 to 1.6 g/cm ³
Dynamic Viscosity PANADUR FAST METAL component (DIN 53019, measuring system 13, at 20 °C, depends on color)	1000 to 4000 mPa·s



Curing Times

	Hardener XP 100 / Hardener XP 110	Hardener 82	Hardener 55	Hardener NN 38
Time frame for handling*	15 min	15 min	15 min	20 min
Dust dry after approx.*	40 min	50 min	60 min	90 min
Completely cured after approx.*	72 h			

* Reference data for color white.

These data are applicable at 23 °C / 50 % relative humidity; lower temperatures lengthen the time periods.

Physico-Chemical Properties

Raw material base	Aliphatic amino-funtional aspartic acid ester, cross-linked with polyisocyanate
Color	Similar to RAL Classic colors
Volume solids content	At least 99 %
Gloss level (DIN EN ISO 2813, 60°)	High-gloss
UV stability	Very high gloss level and color stability
Reaction to fire tests: Small flame test according to EN 13501-1 (applies to all colours; substrate: metal building materials)	Class E (no flaming droplets)
Max. thermal stress for the coating	90 °C
CO ₂ diffusion resistance number μ_{CO_2} (DIN EN 1062-6) *	Infinite (no measurable CO ₂ diffusion)
CO ₂ diffusion-equivalent air layer thickness s_{D,CO_2} (with a 600 μ m film thickness) *	> 200 m (calculated from μ_{CO_2}) → impermeable
Water penetration test (adapted from DIN EN 12390-8, 72 hours) *	No penetration recorded
Impermeability to chloride ion penetration (adapted from DIN EN 13369; 90 d) *	No measurable increase in chloride ion concentration
Artificial weathering adapted from DIN 50021 / EN ISO 9227 (3 months; continuous rain (50 g/l NaCl); 45 °C)	No perceptible change in color, brightness or gloss level (dE, dL, da, db, GE 60°)
Test in boiling deionised chlorinated water (2 mg/l), 6 hours	No perceptible change in colour or brightness (dE, dL, da, db)

* Measurements were taken by a certified testing laboratory.

Hardness acc. to Shore (after 72 h)	Hardener XP 100 / Hardener XP 110	Hardener 82	Hardener 55	Hardener NN 38
D (ISO 868 / DIN 53505) *	Approx. 83	Approx. 82	Approx. 78	Approx. 63

* Reference data for color white.



Processing Guidelines

General information:

Before processing starts, all provided documents must be entirely read and understood.

Preliminary tests with original materials under comparable conditions are necessary to ensure material compatibility and adhesion.

It is absolutely necessary to keep detailed process records for every process step and the entire duration of the construction site, especially equipment maintenance logs (material temperatures and pressures, mass output during processing and measuring equipment tracing) and listed data for processing conditions (temperature deviations and air moisture). In addition the correct operation of the 2K system measuring devices are checked regularly and documented in a verifiable manner.

Uses which have not been specifically mentioned in this technical data sheet may only be performed after consultation and written confirmation by PANADUR GmbH.

Surface preparation:

A careful preparation of the surface is absolutely essential for a durable coating. It is required to use a suitable PANADUR Primer. Its suitability should be verified by preliminary tests.

The following applies in general: See German VOB, Part C, DIN 18363, Section 3.

The metal substrate must be stable. The substrate must be dry, clean, flat and without ridges, defects or loose material. It must also be free of other materials or substances that may separate or impede adhesion (oil, grease, silicone, release agent residue or other impurities). Verified compliance with these requirements (e.g. in daily construction records) must be documented in writing.

Prepare the steel substrate to be coated by blast cleaning to a level of cleanliness of Sa 2 ½ (DIN ISO 8501 B).

Processing:

It is not allowed to dilute the material with any type of additives, e.g. solvents. It is only permitted to use the PANADUR Hardener component in the exact mixing ratio (see label on container).

The material containers should only be opened right before use. Stir PANADUR FAST METAL intensively shortly before use with appropriate technical equipment until the material is homogeneous. After material withdrawal a protection against surrounding moisture (nitrogen or argon fumigation) is highly required for the opened containers. After fumigation, close tightly and use the material promptly.

Keep to the exact mixing ratio given on the container label.

Processing with technical equipment	Processing by hand
<p>PANADUR FAST METAL can be applied with 2K hot spray machines with separate material feeds to the spray head and to the mixing chamber of the heated hose assembly and adjustable mixing ratio.</p> <p>The appropriate spray parameters must be determined through preliminary tests based on the used system. The components are to be stirred continuously during processing.</p> <p>In order to achieve optimal results it is recommended to process the material on the machinery at 60 - 70 °C component temperature.</p> <p>Use cross-coat application until the desired thickness is attained.</p> <p>Due to the long gel time an application of overspray is not possible.</p>	<p>It is also possible to apply the material manually by brush or roller (note the time frame for handling).</p> <p>After having intensively mixed the PANADUR FAST METAL and PANADUR Hardener component it is recommended to pour the mixture into a new, clean container in order to prevent mixing errors.</p>

After application, the coating must not be exposed to moisture for three days in order to achieve the end properties as listed above.

Tool cleaning:

The used 2K hot spray machinery and tools must be thoroughly cleaned immediately after use, and, if necessary, also occasionally, depending on the system type. A proper cleaning agent must be chosen based and tested according to the used system. Please also observe the instructions of the equipment manufacturer.

Note: If the curing process has started, it is no longer possible to clean any used tools.



Cleaning the Coating

Abrasive or aggressive cleaning agents/equipment (e.g. dichloromethane, cellulose thinner, ozone) must not be used.

Cleaning the coating with pressure washers is only permitted with moderate water pressure. The use of any type of grinding brush is not permitted.

Supplemental Products

- PANADUR Primer (surface dependent)

Storage

Protect from heat ($T > 30\text{ °C}$), frost ($T < 5\text{ °C}$) and humidity. Already opened containers must be protected against surrounding moisture (nitrogen or argon fumigation). After fumigation, immediately close tightly and use the material promptly. Do not expose uncured components to direct sunlight. Store and transport containers upright and tightly closed.

Further information may be found in the corresponding safety data sheets.

Protective Measures

The relevant protective measures are to be observed during processing and application. This is to be determined by risk assessment. Suitable protective clothing including respiratory must be worn during processing.

The instructions and safety advice on the containers should be observed during application. Further details may be found in our corresponding safety data sheets for each component.

Environmental Information

Uncured components are harmful to aquatic organisms and may cause longer-term adverse effects in water.

Do not allow individual components and uncured material mixtures to enter water, sewers or groundwater.

The instructions and safety advice on the containers should be observed during processing. Further details may be found in our corresponding safety data sheets for each component.

Important:

When handling our products, the essential physical, safety-related, toxicological and ecological data are to be taken from the appropriate material safety data sheets. Relevant provisions, such as the Hazardous Substances Ordinance, are to be observed.

Disclaimer:

The information above, in particular the suggestions for processing and use of our products, is based on our knowledge and experience under normal circumstances, provided that the products have been properly stored and used. Due to differences in materials and surfaces as well as diverging operating conditions, it is not possible to guarantee a particular result or to be held liable, regardless of the legal relationship, based on these references or on a verbal consultation unless we are found guilty of intention or gross negligence. In such a case, the user must prove that he/she transmitted all information in writing in a timely and accurate manner to PANADUR GmbH which was necessary for PANADUR GmbH to make an appropriate and promising assessment. The user must evaluate the suitability of a product for its intended purpose. Product specifications are subject to change. Proprietary rights of third parties must be observed. Furthermore, our respective current terms and conditions of sale and delivery apply. Only the latest version of each technical data sheet and the corresponding safety data sheets apply which are to be requested from us.