



Technical Data Sheet
Munkadur[®] GL

rev 10/2019

Munkadur GL USA – Technical Data Sheet

Munkadur GL USA

Solvent-free Epoxy hot spraying coating for metal and concrete for use in the food sector

- Product**
- Solvent-free 2-components coating based on epoxy resin
 - Surface area processing in 2-components hot spraying process
 - Extremely durable, chemically resistant, and long-lasting
 - Physiologically harmless
 - Tested by experts according to EU and US guidelines (FDA)
- Areas of application**
- Internal coating for tanks and containers in the food industry
 - References for beer, wine, sparkling wine and mineral water
 - Proven for more than 15 years in daily use
- Product characteristics**
- Suitable for foods such as beer, wine, sparkling wine and mineral water; further foods upon request
 - Very good adhesion to steel, stainless steel, aluminum and mineral surfaces
 - Single coat application
 - Testing of coating for porousness with electro-conductive substrates

Product Data

- Colour**
- | | |
|---------------------|------------|
| Base component: | yellow |
| Hardener component: | dark brown |
| Mixture: | dark brown |

(All information to colours are approximate values and no RAL-colours.)

- Appearance** Satin-finished, smooth, glassy surface

- Packaging**
- | | |
|---------------------|----------------------|
| Base component: | 12.5 liter UN bucket |
| Hardener component: | 12.5 liter UN bucket |

- Shelf life** Original buckets filled and unopened
2 years in a dry and cool storage area

- Coating-Suggestions**
- Steel, stainless steel, aluminum
- 1x Munkadur GL USA
 - Average layer thickness: 500 µm
 - Minimum layer thickness: 350 µm
 - Maximum layer thickness: 700 – 800 µm according to ambient conditions

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Concrete

- Reprofilling and applying a sustainable coat
- made of physiologically harmless polymer mortar
- 1x Munkadur GL
- Average layer thickness: 500 µm
- Minimum layer thickness: 350 µm
- Maximum layer thickness: 700 – 800 µm according to ambient conditions

Surface preparation

Steel

- Removal of welding beads, grinding down of welding seams and welding-seam overlaps
- Shot blasting according to SA 2 ½, free of dirt, grease and oil
- Average surface roughness: Rz > 40 µm

Stainless steel/aluminum

- Clean and blast with a non-ferritic blasting abrasive
- Average surface roughness: Rz > 40 µm

Concrete

- The surface to be coated must comply with technical building standards, be load bearing, solid, and free of bond-damaging substances.
- The surface tensile strength should be at least 1.5 N/mm² on average and may not fall below 1.0 N/mm² with the smallest individual value.
- Maximum residual moisture of 4 % according to CM-method.
- After blasting, at least one layer of physiologically harmless polymer-mortar adapted to the system has to be used for reprofilling and creating a continuous base course.

Technical Data

Material consumption

Approx. 1.0 kg/sq. meter (depending on the size of the container and ambient temperature)

Density

Base: approx. 1.409 kg/l
 Hardener: approx. 1.399 kg/l
 Mixture: approx. 1.404 kg/l

Mixing ratio

1 : 1 (proportion of weight)
 1 : 1 (proportion of volume)

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Resistance	<u>Chemical influences</u> - For pure chemicals: see M+S Resistance List - For cleaning and disinfection agents: see M+S Compatibility List <u>Mechanical influences</u> Hardness > 90 according to Buchholz <u>Temperature</u> 40 °C water, higher temperatures and media after testing
Munkadur surface roughness	Rz: 1.5 – 2.0 µm Ra: 0.2 – 0.3 µm
Resistance to abrasion (ISO 7784:2016-12) S 33/ 500g/ 500 U	0.20 g
Pull-off test adhesion (ISO 4624:2016-08)	> 15 N/mm ²
Impact resistance (ISO 6272:2011-11)	Coating side: < 40 cm height Substrate side: < 2 cm height 1000 g falling weight

Processing Instructions / Conditions

Preparation of the material Heat up buckets with base and hardener separated from each other to approx. 65 °C for maximally 18 h, fill into 2-components hot spraying unit and start coating procedure.

Please note:

Hardener material is temperature sensitive. Hardener material that has already been heated up once has to be used with caution. Not more than 30 % of Hardener in the spraying unit may consist of material that has been heated up more than one time.

Processing methods

Hot spraying

With special 2-components hot spraying unit

Undiluted

Spray nozzle: 0.53 - 0.76 mm (0.68 mm)

Temperature of base: 60 - 70 °C*

Temperature of hardener: 60 - 65 °C*

Temperature of tank wall: > 10 °C

Relative humidity: max. 80 %

Dew-point temperature must be at least 3 °C below the temperature of the substrate to be coated.

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*Please note:

The base/hardener temperatures need to be adjusted to the surface temperature. Too low temperatures (medium and wall temperatures) may lead to overspray whereas too high temperatures may lead to sagging of the coating. In practice, best coating results were obtained on tank/vessels at a temperature of up to 20 °C with machine temperatures of 65 °C (Base-/Hardener temperatures). Whereas with vessel at temperatures of >20 °C good results were obtained with Base-/Hardener temperatures of 60 °C.

Smoothing over / painting

Undiluted

For small surface repair spots or improvements only, see also:
Repair instructions for Munkadur GL

Please note:

Munkadur GL must not be diluted!

Pot life	approx. 40 minutes at 18 °C
Curing time	<ul style="list-style-type: none"> - At a minimum of 18 °C after 8 days, surface will be resistant to mechanical stresses and chemicals - Temperatures > 18 °C will <u>not</u> shorten the hardening
Waiting time between two operations	<ul style="list-style-type: none"> - Maximum of 2 hours at no more than 20 °C - For longer intermediate hardening times, shot blasting the coating is necessary
Reworking Final drying time	<p>Solely with itself</p> <ul style="list-style-type: none"> - Fully resistant to mechanical stresses and chemicals after 8 days at a minimum of 18 °C - Tanks/containers can be closed immediately after the coating work - No fresh air supply is required for full cure
Advice for initial filling	Before their initial filling, newly coated tanks or containers are to be cleaned and, if necessary, disinfected in compliance with the M+S Compatibility List for cleaning and disinfection agents.
Data basis	All technical data, dimensions and information in this data sheet are based on laboratory results and measurements. Depending on different environmental parameters and influences that are beyond our area of influence, the actual data may vary.
Exclusion of liability	The afore-mentioned information, especially the recommendations for processing and using our product, are based on our knowledge and experience in a normal case, provided that the product has been properly stored and used. Due to the varying substrate materials and differing working conditions, a guarantee of work results or liability from any kind of legal relationship cannot be established from this information or from verbal consultation.