

Knaphen A 440

Technical Data Sheet



Product classification

It is a two component chemically curing aliphatic acrylic polyurethane coating. It has a high gloss finish with excellent gloss retention. It is a high solids product. It has a good chemical resistance. To be used as topcoat in atmospheric environments.

The sphere of application

It is recommended to paint especially offshore environments and metal construction of production plant, storages, bridges and buildings, tanks, ships, underwater metal constructions and electric stations.

Film thickness and theoretical spreading rate

	Minimum	Maximum
Film thickness, dry (μm)	30	60
Film thickness, wet (μm)	85	171
Theoretical spreading (m^2/l)	10.8	5.5

Physical specifications

Color		Ral color
Volume solids	ASTM D2697-03	35%±2 (by volume)
Density (gr/cm^3)	ASTM D1475-13	1.08±0.02 (Depend on color)
Viscosity (25°C) KU	ASTM D562-10	85±5
Flash point	ISO 3679	30°C±2
Gloss level (GU 60°C)	ASTM D523-14	High Gloss (70-100)
Pot life (23°C)		10 Hours
Mix ratio (by weight)		4 units A Comp., 1 units B Comp.
Thinner		5-10 % Acrylic Thinner

All results are mixture (A+B) mixtures and can differ slightly depending on color.

Surface preparation

Steel - Blast Cleaning

All surfaces should be clean, dry and free from contamination. Surfaces should be treated in accordance with ISO 8504:2000.

All edges shall be ground to a minimum radius of 2 mm. Remove weld spatter and smooth weld seams by using disc grinders, chipping hammers or other suitable power tools. Sharp edges, weld seams, corners and other areas that are likely to receive less dry film thickness than specified, should be stripe coated.

The surfaces shall be blast-cleaned to min. Sa 2½ (ISO 8501-1:2007). The surface profile and the anchor pattern shall be between 40 μm and 70 μm .

Coated substrates

All surfaces should be clean, dry and free from contamination. Surfaces should be treated in accordance with ISO 8504:2000.

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Ensure compatibility of the coated substrates with the selected paint system. If the remaining part of the existing coating system needs to be sweep-blasted, fine abrasive shall be used to avoid damage to the coating system.

When recoating aged coated substrates, damaged areas must be removed back to a firm edge. Light abrade or sweep-blast the surface in order to provide a physical key for adhesion.

When recoating zinc primed products, ensure the primer has been fully cured. Zinc salts products shall be removed by high pressure fresh water cleaning.

Contact "CMT GROUP" for more information.

Application

Mixing

The product is supplied in 2 containers as a unit. Always mix a complete unit in the proportions supplied. Do not mix more material than can be used within the specified pot life.

- Stir the base (Part A) with a clean mechanical mixer.
- Then add the entire contents of Curing Agent (Part B) and mix thoroughly.

Avoid too vigorous mixing as it leads to in air inclusion, which may result in poor application results.

If thinner is required, only add after mixing of the two components.

Irrespective of the substrate temperature, the advised minimum temperature of the mixed paint is 15 °C. At lower temperatures, more thinner may be required to obtain a proper application viscosity, which may result in lower sag resistance and slower curing.

The temperature of the substrate should be at least 10°C and at least 3°C above the dew point of the air.

Temperature and relative humidity should be measured in the vicinity of the substrate.

In general, the maximum recommended surface temperature is 40°C. Higher steel temperatures are acceptable provided dry-spray is avoided by proper spray application and extra thinning if required. In extreme cases it may be necessary to reduce film thickness in order to avoid sagging.

When applying the paint in confined spaces, provide adequate ventilation during application and drying. Observe local regulations. Please contact Contact "CMT GROUP" for a specific recommendation.

Application methods

Guiding data Airless spray

Pressure at nozzle	120 – 180 bar
Nozzle size	0.38 - 0.58 mm
Spray angle	40 – 80 degrees
Volume of thinner	0 – 3%

Guiding data Airspray

Pressure at nozzle	3 - 5 bar
Nozzle size	1.2 – 1.5 mm
Volume of thinner	0 – 5%

Brush/Roller

Recommended for stripe coating and small areas. Care must be taken into account to achieve the specified dry film thickness.

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Thinner

If thinning is necessary, this should be added after mixing of the two components. The recommended level of thinner is dependent on thickness and conditions. In certain circumstances, it may be required to exceed the stated level of thinner.

However, as a general rule do avoid excessive thinning as it will result in lower sag resistance and slower cure. In addition it may cause solvent entrapment, possibly risking blistering, pinholing and/or other coating defects.

Film thickness

The paint must be applied as a continuous layer and as close to the specified wet film thickness as possible. Use a wet film thickness gauge to verify that the correct wet film thickness is applied.

Over application, excessive thinning, wrong application techniques etc. may lead to runs and sagging of the paint. When the paint is still wet, such effects can be rectified by brushing out the defected areas.

When the defect is noticed after curing of the paint, repair the affected areas by disc sanding to an even smooth surface and apply an additional coat of paint.

Stripe Coating

Stripe coating may be required to achieve the specified film thickness on specific areas such as edges, corners, weld seams etc. Use a round brush and ensure proper wetting of all areas. Avoid excessive application as it will lead to brush marks and may also result in air entrapment, which is detrimental to the paint's performance.

Additional usage instructions

Note to metallic colourshades.

The appearance of metallic colourshades in general will be dependent on application method, conditions, thickness, substrate type etc. For this reason, metallic shades cannot be made exactly according to colour code standards such as RAL, BS.

Drying and curing time

Drying duration depends on weather conditions, thickness and number of layers. In the table below, approximate drying duration is shown in different temperatures.

- Surface must be good-ventilated (Open air or free air circulation)
- Paint must be applied in recommended thickness
- Thickness must be determined according to the number of layers

Weather temperature	10°C	23°C	40°C
Surface drying	4 hours	1-2 hours	30 min
Top drying	8 hours	3-4 hours	2 hours
Full drying	14 hours	10 hours	8 hours
Full curing	4 day	3 day	2 day

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Second layer, minimum

8 hours

5 hours

2 hours

Information shows above determined according to rules. Drying time can be increased or decreased depending on film thickness, ventilation, old paint system, applications on paint, mechanical resistance and thinner amount.

Product compatibility

Depending on the actual exposure of the coating system, various primers and topcoats can be used in combination with this product. Some examples are shown below. Contact our company for specific system recommendation:

Previous coat: zinc-epoxy, epoxy, epoxy plaster, polyurethane

Next coat: acrylic-polyurethane

Typical paint system

Knarr Zinkomastik Primer

1 x 100 µm

Knarr Zinkomastik Primer

1 x 100µm

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1 x 60 µm

Other system can be determined depending on surface.

Storage conditions

Paint must be stored according to territorial conditions in dry, cool, good ventilated places where there is not any risk for high temperature and sparks. It is recommended to mix the paint before usage. Containers must be kept tightly closed. Shelf life is 36 months (at 23°C).

Packaging

Produced 16 Kg Component and 4 Kg B Component.

Applier paint specialist

This product is for professional use only. The applicators and operators should be trained, experienced and have the capability and equipment to mix and apply the coatings correctly and according to requisition. Applicators and operators must use appropriate personal protection equipment when using this product.

Color of the product

When applicable, products primarily meant for use as primers or antifoulings may have slight color variations from batch to batch. Such products may fade and chalk when exposed to sunlight and weathering.

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Caution

The information above is prepared based on laboratory testing and practical experience. The company cannot guarantee anything but the quality of the product, because products are often used under conditions beyond our control.

Health and safety rules

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not inhale spray mist. Avoid skin contact. Spillage on the skin should be immediately removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

NOTE: "CMT Group" LLC holds right to change information on this Technical Data Sheet without further notice.

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