

PHYSICAL CONSTANTS

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Finish: The appearance of the paint film after drying under optimum conditions,- given as high gloss (>90), gloss (60-90), semi-gloss (30-60), semi-flat (15-30), or flat (<15). All figures are in gloss units and according to **ASTM D 523-67** (specular gloss, 60 degree geometry). The actual appearance will depend on the conditions during application and drying/ curing.

Flash point: The lowest temperature at which a liquid liberates sufficient vapour to form a mixture with the air near its surface which, if ignited, will make a small flash, but not catch fire. The flash points of **Rangan Far' s** paints are measured according to the setaflash method (closed cup). The figures are given as a guidance with a view to local regulations for precautions against fire during use. Substantial changes owing to reformulation will be followed by the issue of a revised product data sheet.
Adding thinner to a paint may change the flash point of the diluted material.

Volume solids:

The volume solids (**VS**) figure expresses in percentage the ratio:

dry film thickness
wet film thickness

The stated figure has been determined as the ratio between dry and wet film thickness of the coating applied in the indicated thickness under laboratory conditions, where no paint loss has been encountered.

The method of determination follows the rules of **ISO 3233/ASTM D 2697**, yet by drying at **25°C and 60%** relative humidity for 7 days instead of drying at higher temperatures.

Volume solids are usually slightly higher than the theoretical value, which is found by a calculation based on the paint composition taking specific gravity and solid content of each individual raw material into consideration.

Volume solids take into account that small amounts of solvents are usually retained, and that air may be entrapped in the dry paint film either in the form of vacuoles or as interstices in zinc silicates.

Volume solids are in better agreement with practical measurements of dry film thickness than the theoretical value.

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Dry film thickness (D.F.T):

Dry film thickness (D.F.T) is indicated in a thickness frequently used in specifications.

Note: Several products are **specified** in different film thicknesses for different purposes. checking of dry film thicknesses is, generally, done with gauges calibrated on smooth reference steel panels.

Specific gravity:

The weight in kilograms per liter at **25°C/77°F** an equivalent figure is given in lbs per us gallon. For two-component products the specific gravity is given for the mixed product.

Theoretical coverage:

The theoretical coverage rate of the paint in a given dry film thickness on a completely smooth surface is calculated as follows:

$$\frac{\text{volume solids \%} \times 10}{\text{dry film thickness (micron)}} = \text{m}^2/\text{litter}$$

In the product data sheet the theoretical coverage rate is stated for an indicated by film thickness (D.F.T) that is usually specified for the product . Some products may be specified in different dry film thickness for different purposes affecting the coverage rate accordingly. Theoretical coverage rate can not be given for paint materials used for saturation of an absorbing substrate i.e., wood , concrete, etc.

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Drying time :

Drying time tested according to **ISO 1517**. records the time to elapse before dust will not stick on to the painted surface.

Touch dry:

The drying time in the product data sheet is “touch dry” unless otherwise indicated.

the drying time refer to a temperature of **25°C** with adequate ventilation.

“touch dry”: a slight pressure with a finger does not leave a mark or feel sticky.

Dry to handle:

The paint surface is sufficiently hardened to be handled with care without coming off/being damaged.

Full cure:

The curing time is given for two- component products at **25°C** . The curing is accelerated at higher temperatures and retarded at lower temperatures. For products where the curing time is given at **25°C** only, the following rough rule of thumb can be utilized:

Curing will stop almost completely below the temperature stated under application conditions as the lowest temperature at which the paint should be applied.

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Pot life:

Roughly speaking, the pot life **for solvent –born** paints depends on the paint temperature as follows:

The pot life is halved at an increase in temperature of **10°C / 18°F**, and doubled at a decrease in temperature of **10°C / 18°F**.

For **Rangan Far** products the pot life is usually shorter for application by airless spray than for brush application. Thus the high dry film thickness usually specified by airless spray application is only obtainable within the pot life indicated for airless application.

Note: pot life cannot be extended by thinning.

Mixing ratio:

Two – component, chemically curing products are supplied as **base(resin)** and **curing agent(cure)** in the correct mixing ratio. the mixing ratio must be strictly adhered to, also when sub-dividing. Add the **curing agent** to the **base** 30 minutes before use (at **25°C**), unless the pot life is (very) short, and stir well.

Application method:

Gives the possible or recommended method (s) of application. As a general rule, the first coat of a rust-preventing primer should be applied by brush or airless spray to obtain best possible wetting and penetration into the substrate.

application by brush or roller usually demands more coats applied to achieve the specified film thickness than application by spray equipment.

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Recoat interval:

The time required or allowed to pass at **25°C** or the relevant temperature range for the product in question before the subsequent coat is applied.

The intervals are related to the temperature, film thickness, number of coats, type of future (in service) exposure and will be affected correspondingly. For maximum intervals the temperature in this context is the highest surface temperature during the period. For some products the interval is more critical in regard to intercoat adhesion than others. If the maximum interval is exceeded it may be necessary to roughen the surface to ensure adhesion of the next coat. On the other hand, for some paint types the interval may not be critical in respect of adhesion, but a primer coat should not left unprotected for too long in an aggressive environment.

If nothing else is mentioned the indicated intervals refer to recoating with the same paint. Other paints of different types may require other (recoating) intervals.

After exposure of any painted surface in polluted environment thorough cleaning by high pressure fresh water hosing or another appropriate measure is always recommended before recoating.

Shelf life:

The time the product will keep in good condition when stored under cover in original,

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sealed containers under normal storage conditions. Shelf life is indicated only if it is one year or less at **25°C** .it will usually decrease at higher temperatures.

If no specific limitation is given, a paint should not be stored for more than one year from the date of invoice. This interval has been chosen as a practical guideline.

Surface preparation:

The recommended degree of cleaning of the surface before painting. The degrees of cleaning refer to **ISO 8501-1:1988**. pictorial surface preparation standards for painting of steel surfaces, unless otherwise indicated.

For previously painted surfaces the method and degree of preparatory cleaning is generally indicated.

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