

Technical Information

PREPARATION AND PROCESSING

senotherm®-UHT-Hydro



Product series:
3590

1. STORAGE AND PREPARATION OF COATING PROCESS

1.1 QUALITY CONTROL OF MATERIALS ON RECEIPT

New supplies should be controlled with respect to the following parameter:

- a) Actual quantity supplied should correspond to the quantity indicated on the delivery note.
- b) Packaging supplied should be checked visually, so as to ensure that they were not damaged during transport.
- c) Supply viscosity should be conform to the values indicated in the according technical data sheet.

1.2 STORAGE

Paint:

Shelf life of the paint depends on the ambient temperature. If stored under optimum conditions, i.e. 10-25 °C in sealed original packaging, the shelf live is 6 month. Higher temperatures may reduce shelf life to 3 months. Material must be protected against heat, frost und direct solar radiation.

Hardener:

Since the hardener is categorized as highly flammable the following storage conditions are important:

- Keep tightly closed.
- Keep away from heat, sparks and open flame.

1.3 PREPARATIONS FOR COATING PROCESS

Prior to processing material must be brought to room temperature and must be stirred thoroughly.

Paint: Must be homogenized thoroughly by stirring until potential sediment has been completely dissolved.

Hardener: No homogenization needed.

Maturing: The whole quantity of hardener is to be poured into the paint at the specified mixing ratio by weight. Normally, our supplies are arranged in such a way that the quantities of paint and hardener exactly fit with each other, i.e. one can of hardener contains the adequate quantity for one drum of paint.

The mixture of paint and hardener must then be stirred for 45 minutes with a suitable mixer and an appropriate stirring disc at 2000 rpm.

Cooling: Directly after maturing, the temperature is too high for application. To achieve best results it is recommended to let the matured coating cool down over night.

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- Filtration:** As the material is air drying quickly there might be dry particles of coating at the sides of the containers. As these dried particles do not redissolve again, it is recommended to filter the matured coating through 250 µm (60 mesh) prior to application.
- Substrate:** A metallically pure substrate free from grease, rust, blasting residues and other contaminations is, as well as the shot blasting, a basic requirement for good coating results. Alkaline detergents or organic solvents can be used for degreasing. Sand blasting with alumina (corundum, Al₂O₃) having a particle size of 80-100 mesh should result in a surface roughness of at least Ra = 2.5 µm. This is the recommended optimum for a good adhesion of the coating.

2. COATING LINES AND PROCESSING

senotherm®-UHT-Hydro can be applied by

- conventional air assisted, manual or automatic spraying
- Nozzle diameter: 1,0-2,0 mm
In practice nozzle sizes of about 1,5 mm have proven to be advantageous.
- Atomization pressure: 2.0-5.0 bar (30-70 Psi)
- Supplying pressure (pressure pot) : 1-1,5 Bar

Processing and processing parameters:

Cup guns should be closed during spraying.

Tubes and pipes must be cleaned and rinsed at the end of the shift as well as before any longer stoppage of work.

If possible, application should be made under constant conditions as e.g. temperature and atmospheric humidity. As this is hardly fully feasible in practice, processing parameters as e.g. supply and atomising pressure should be adjusted to the changed conditions.

The recommendations for the application zone are 20 to 35 °C for the ambient temperature and a relative humidity under 70%.

Dilution: Basically, a dilution is not necessary, as the product is “ready-to-use” after completion of the maturing. If, however, necessary, a dilution with demineralised water up to 5 % by weight is possible.

Cleaning: Coating equipment should be cleaned with water. Dried parts can be cleaned with alcohols like ethanol or iso-propanol respectively a mixture of water and alcohol in a 3:1 mixing ratio.

Spray guns and equipment should be disassembled and cleaned for next working.

Careful: **Fully reacted material can only be removed by mechanical force.**

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3. SUBSTRATES

To obtain a good coating result on the listed substrates, the below pretreatment (1-3) is a must:

Substrate	Pre-treatment
Steel	1. Minimum necessity is at any rate a clean, metallicly pure substrate that is further free from grease. Corrosion products (layers of rust or mill scale etc.) must be completely removed prior to application, 2. Sand blasting with corundum providing a surface roughness of about $R_a \approx 2.5 \mu\text{m}$
Stainless steel	
Cast iron	

As the requirements, depending on the end use, vary considerably, each new material and processing combination should be tested with respect to its suitability for the respective application prior to use. As a rule, substrates should - after pre-treatment - be coated as soon as possible in order to avoid belated contamination, the formation of oxide layers and humidity infiltration.

4. FILM THICKNESS

The recommended dry film thickness is 25 +/- 5 μm .
 This value equals about 60 μm wet on a wet film comb.
 To avoid problems with flaking and chipping after temperature stress the thickness should not exceed 50 μm .

5. DRYING

Drying times depend on many parameters like temperature, humidity, airspeed/convection and of course dry film thickness.
 Panels coated under lab conditions were dry to touch after approx. 30 minutes at room temperature.
 The drying can be speeded up by increasing the temperature - up to 70 °C.
 Higher temperatures, however, may affect the film formation and consequently the adhesion of the system.
 After 4 h air drying the surface is about twice as hard as conventional oven finishes.
 After 1 day at 20 °C the coating film has already achieved 90 % of its final hardness.
 From this stage on the system is virtually free from smoke and fumes when being heated up to operating temperatures.

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6. POT LIFE

During maturing a reaction is started which will harden the coating completely. As this process also continues in the drum the material has a limited shelf life of 48 hours. After that time, the viscosity increases and the material becomes 'muddy' which indicates that it can not be used anymore. This process can be slowed down and the shelf life prolonged by cooling the matured material. Careful: Don't cool below 5 °C !
Temperatures exceeding 20 °C as well as other altering condition may reduce pot life.

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The above indications were determined under lab conditions and in practice as being reference values. They correspond to today's developments in technique. Application equipment and application technique are beyond our influence. This information is given to the best of our knowledge, however, no liability or obligation whatsoever is assumed in connection with it.