TECHNICAL DATA SHEET (TDS)
ONGRONAT® 3020

- **Product description:** ONGRONAT® 3020 consists of 4,4'-methylene diphenyl diisocyanate
- **Appearance:** White crystalline solid at room temperature, and colourless liquid in molten form
- **Features & benefits of the end product produced using ONGRONAT® 3020:** Flexiblity, High strength, Durability, Comfort, Weather, chemical and abrasion resistance
- **Industry:** Construction
- **Applications:** Adhesives and binders

SPECIFICATIONS

Property	Value	Dimension	Test Method
NCO	min. 33.4	wt%	ASTM D5155
Acidity	max. 10	ppm	BorsodChem Method PAK 126

OTHER PROPERTIES*

Property	Value	Dimension
Density (at 43 °C)	1.18	g/cm^3
Viscosity (at 43 °C)	10	mPa.s
Flash point	>200	°C
Vapour pressure (at 43 °C)	$<10^{-4}$	mbar
Freezing point	38.8	°C

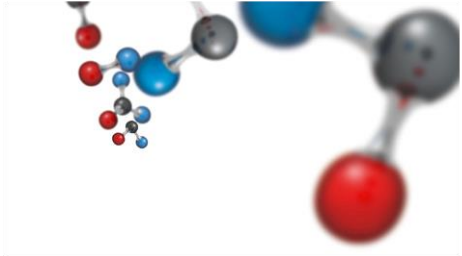
*Values given in the „OTHER PROPERTIES" section are only typical ones and they are not to be considered as part of the specification.

PACKING, STORAGE & TRANSPORT

Packing and transport: ONGRONAT® 3020 can be loaded and transported in road tankers, 225 kg non-returnable metal drums, or in metal cans under nitrogen blanket. ONGRONAT® 3020 is delivered in two forms: liquid (in bulk) and frozen (drummed). In the case of bulk product the loading temperature is 40-50 °C, while stowage of the cold drummed product takes place at temperatures below -20 °C. Please note that based on the distance of the destination the delivery temperature may differ from the loading temperature. The delivery temperature is 40-50 °C in bulk and is below -10 °C in the case of frozen drummed product. ONGRONAT® 3020 is shipped according to the above mentioned delivery temperature ranges in the lack of any special requirement.

Storage: Because of its chemical nature ONGRONAT® 3020 is sensitive to the conditions of the storage (especially to the storage temperature), therefore after receiving the product care must be taken to move it to a storage (or tank) with the appropriate storage temperature as soon as possible. ONGRONAT® 3020 preserves its quality at 41-45 °C under a nitrogen blanket (dew-point of - 40 °C) for two weeks from the production. In case of longer storage period - due to dimerisation - the product may become opaque. It is recommended to store the product below -20 °C in solid form, thus its quality may be preserved for max. six (6) months from the production. Above this temperature the rate of dimerisation will increase exponentially with temperature increase and will result in a maximum at the surroundings of the melting point. It is not recommended to store the product at ambient temperature. When storing ONGRONAT® 3020 below -20 °C it needs to be remolten before processing. In the course of this, local overheating of the material must be avoided. Time of the remelting must be as short as possible, so heat transfer efficiency must be maximised. Based on the above information the possible ways of remelting are:

1) Air circulation in a furnace equipped with a built-in fan with a preset temperature of 70-80 °C. Rotate the drums on rolls with a velocity about 1-2 rotations/minute. If it is not possible, drums should be moved often. Using this procedure the content of a drum (225 kgs net weight) can be remolten in 15 hours time.



2) Steam current: Drums (closed and in an upright position) are treated with low pressure (max 2.0 barg) wet steam in a closed container. Inside temperature must be kept at 80-90 °C, by controlling the inlet steam volume. If possible drums should be moved often. In such cases the length of the remelting period is 6 hours.

3) Water bath: Drums (closed and in an upright position) are treated with warm (60 °C) water circulated in a bath. Inside temperature must be kept at 80-90 °C, by controlling the inlet steam volume. Drums have to be rotated often. In this case remelting requires 6 hours. Water traces from the top must be wiped off to avoid contact of ONGRONAT® 3020 with water. Formation of slight overpressure may occur during the remelting process, which can be avoided by gradual release via careful opening of drums. To avoid contact with atmospheric moisture, dry nitrogen gas blanket should be applied to the drums (with a dew point of -40 °C) before closing them. Dry air used as a blanket may oxidise ONGRONAT® 3000 turning its colour to yellow, therefore its use needs to be avoided. Since it is soluble in isocyanates, carbon dioxide (CO_2) must not be used for the purpose of blanketing as an inert gas either.

SAFETY PRECAUTIONS

Handle the material with care. Avoid contact with water and moisture. Reaction with water always results formation of CO_2 and therefore increase of pressure in the closed storage container. Avoid contact with skin and eyes. Do not inhale the vapours of the product. Detailed safety information available on the www.borsodchem-group.com website and in the specific Safety Data Sheet.

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Technical Data Sheet (TDS)
ONGRONAT® 3020

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