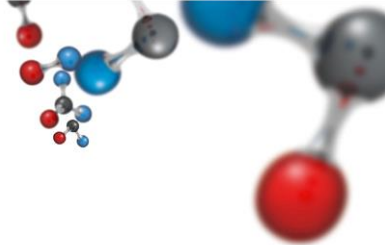


# TECHNICAL DATA SHEET (TDS)

## ONGRONAT® 3000



- **Product description:** ONGRONAT® 3000 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® 3000:** Flexibility, High strength, Durability, Comfort, Weather, chemical and abrasion resistance
- **Industry:** Construction; Transport; Wood; Clothing and Footwear; Furniture, Bedding & Decoration
- **Applications:** Wire and cable insulation, energy absorption, body panels, bumpers, paints and coatings, shoe soling, synthetic leather, sports & leisure, clothing fabrics, wood coating

### SPECIFICATIONS

Property	Value	Dimension	Test method
NCO	min. 33.4	wt%	ASTM D5155
Acidity	max. 50	ppm	BorsodChem Method PAK 126

### OTHER PROPERTIES\*

Property	Value	Dimension
Density [at 43°C]	1.18	g/cm <sup>3</sup>
Viscosity [at 43°C]	10	mPa.s
Flash point	>200	°C
Vapour pressure [at 43 °C]	<10 <sup>-4</sup>	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® 3000 can be loaded and transported in road tankers, 225 kg non-returnable metal drums, or in metal cans under nitrogen blanket. ONGRONAT® 3000 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® 3000 is shipped according to the above mentioned delivery temperature ranges in the lack of any special requirement.

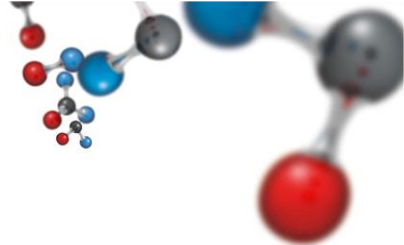
Storage: Because of its chemical nature ONGRONAT® 3000 is sensitive to the conditions of the storage (especially to the storage temperature), therefore after receiving the product care must be taken to move it to a storage (or tank) with the appropriate storage temperature as soon as possible. ONGRONAT® 3000 preserves its quality at 41-45 °C under

nitrogen blanket (with dew point of -40 °C) for two weeks from the date of its production. In case of longer storage period the product may become opaque or sedimented due to dimerisation. 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 date of its 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. For this reason it is not recommended to store the product at ambient temperature. When storing ONGRONAT® 3000 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 pre-set 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

# TECHNICAL DATA SHEET (TDS)

## ONGRONAT® 3000



hours time depending on the heating equipment and weight of product remelted.

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 typically 6 hours depending on the flow rate of steam and the weight of product remelted. The method involving direct heating of the product in closed drums with steam poses the highest risk of quality deterioration due to increased chance of overheating the product locally. When steam is used for the melting process, special attention should be paid to avoiding local overheating and consequent dimerisation.

3) Water bath: Drums (closed and in an upright position) are treated with warm (60 °C) water circulated in a bath. In this case remelting typically requires 6 hours. Water traces from the top of the drums must be wiped off to avoid contact of ONGRONAT® 3000 with water.

Independently from the method selected, formation of slight overpressure may occur during the remelting process, which can be avoided by gradual release via careful opening of drums. Once the drums were opened, 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 again. Dry air used as protective blanket may oxidise ONGRONAT® 3000 turning its colour to yellow, therefore its use needs to be avoided as much as possible. Since it is soluble in isocyanates, carbon dioxide (CO<sub>2</sub>) must not be used as inert gas blanket either.

### SAFETY PRECAUTIONS

Handle the material with care. Avoid contact with water and moisture. Reaction with water always results formation of CO<sub>2</sub> 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](http://www.borsodchem-group.com) website and in the specific Safety Data Sheet.

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Technical Data Sheet (TDS)  
ONGRONAT® 3000

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Manufactured by:

BorsodChem Zrt.  
Bolyai tér 1.,  
H-3700, Kazincbarcika  
Hungary  
Phone: +36-48-511-211  
Fax: +36-48-511-511