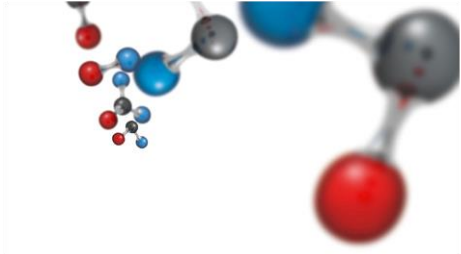
TECHNICAL DATA SHEET (TDS)
ONGRONAT® CO 4150



- **Product description:** ONGRONAT® CO 4150 is a mixture of monomeric MDI isomers and polymeric MDI
- **Appearance:** Solvent-free, dark brown, low viscosity liquid at room temperature
- **Industry:** Construction
- **Applications:** Adhesives & Binders

SPECIFICATIONS

Property	Value	Dimension	Test Method
NCO	30.8 - 32.8	wt%	ASTM D5155
Viscosity (at 25 °C)	80 - 120	mPa.s	ASTM D4889

OTHER PROPERTIES*

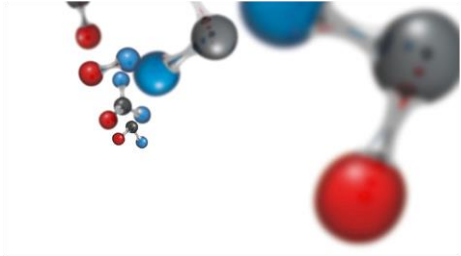
Property	Value	Dimension
Density (at 25°C)	1.23	g/cm^3
Flash point	>200	°C
Vapour pressure (at 25°C)	$<10^{-5}$	mbar

*Parameters given in the other property range are only typical values; therefore they are not part of the specification.

PACKING, STORAGE & TRANSPORT

Transport and packing: ONGRONAT® CO 4150 can be transported and packaged in 1000 l containers, 225 kg non-returnable metal drums, or in metal cans under nitrogen blanket. The loading temperature is 40-45 °C in bulk and 20-30 °C in the case of drummed product, or in intermediate bulk containers (IBCs). Please note that based on the distance of the destination the delivery temperature may differ from the loading temperature, but still remains in the range of 20-45 °C delivering the product in bulk. When transporting ONGRONAT® CO 4150 in drums or IBCs the temperature must be kept in the range of 15 to 30 °C, therefore exposure of the containers (drums or IBCs) to cold shocks and the prolonged effect of intensive sunlight must be avoided. ONGRONAT® CO 4150 is shipped according to the above mentioned delivery temperature ranges in the lack of any special requirement.

Storage: Normal processing temperature of ONGRONAT® CO 4150 is between 20-25 °C. It is recommended to store the product within this temperature range. Under these conditions the product preserves its quality for max. six (6) months from the date of its production. The material can also be stored within the temperature range of 15-30 °C without affecting its quality significantly. During storage below 15 °C the quality of ONGRONAT® CO 4150 can deteriorate, because of the partial crystallisation of its 4,4'-methylene diphenyl diisocyanate content. The product can be liquefied again by heating it up to 70°C as rapidly as possible in a controlled way. During this re-melting procedure sediment can be generated. If the product is not consumed immediately after re-melting, it is necessary to ensure storage at the recommended temperature. Storage at a temperature above 30 °C is not recommended since discolouration and formation of insoluble solids (dimerization) may occur which can lead to a viscosity increase and a decrease of NCO content. Above 150 °C a slow, exothermic decomposition reaction takes place, which becomes extremely fast above 250 °C, so care must be taken to avoid this thermic effect. The material must be kept dry at all times; therefore it must be protected from water ingress and atmospheric moisture. In order to protect the material from atmospheric moisture a dry inert gas blanket (nitrogen) with a dew point of -40 °C must be used for any type of containers (drums, IBCs or storage tanks). Dry air is not recommended for this purpose because it could cause oxidation and due to this, the colour of the product may become darker. Carbon dioxide (CO_2) is soluble in isocyanates, therefore it is not recommended to be used as 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® CO 4150

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Chemistry for generations