



PRODUCT INFORMATION

TECHNICAL DATASHEET

2/4/2021

Introduction

ROTAKOTE™ K3 is a rapid reacting three component elastomer system, designed to be poured onto a rotating core to produce a tough elastomeric roller covering suitable for material handling rollers.

Use of the common ROTAKOTE™ 5137 Prepolymer together with two curatives: ROTAKOTE K3/65 and ROTAKOTE K3/95 will produce elastomers at 65 and 95 Shore A. Blends of these curatives will allow a full hardness range from 65 to 95 Shore A to be achieved.

ROTAKOTE K3 Three Component Elastomer System

Component Properties

Polyol Component

Product Reference	ROTAKOTE™ K3/65A Curative
Appearance	Amber Liquid
Viscosity	5 - 15 poise at 25°C
Specific Gravity	1.01 – 1.05 at 25°C

Polyol Component

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Appearance	Amber Liquid
Viscosity	5 - 15 poise at 25°C
Specific Gravity	1.01 – 1.05 at 25°C

Isocyanate Component

Product Reference	ROTAKOTE™ 5137 Prepolymer
Appearance	Pale Amber Liquid
Isocyanate Content	6.1 – 6.5%
Viscosity	80 – 120 poise at 40°C

These are typical values and should not be construed as specifications.

Mixing Ratios

ROTAKOTE™ components can be mixed in the following proportions to give a range of hardness.

Shore A Hardness	65	70	75	80	85	90	95
ROTAKOTE™ K3/65A Curative	100	95	90	80	60	40	0
ROTAKOTE™ K3/95A Curative	0	5	10	20	40	60	100
ROTAKOTE™ 5137 Prepolymer	250	267.5	286	317.5	384.5	454.5	588

These are typical values and should not be construed as specifications.

Cured System – Typical Properties

Property	Value						
Shore A Hardness	65	70	75	80	85	90	95
Tensile Strength (Mpa)	10	11.5	13.5	16	18	24	25
Elongation at Break (%)	410	400	395	390	385	375	320
Angle Tear Strength (N/mm)	33	43	47	55	69	80	82
DIN Abrasion (mm ³)	98	50	39	38	38	36	32
Rebound Resilience (%)	80	70	69	67	60	58	55
Density (g/ml)	1.06	1.06	1.06	1.06	1.06	1.06	1.06

These are typical values and should not be construed as specifications.

Processing Details

The following information is given as a guide to processing this product. It is recommended that optimum conditions for a specific application are determined experimentally. Our Technical Service Department can offer more detailed advice.

ROTAKOTE™ systems are designed for processing through two or three component polyurethane dispensing machinery. Our Technical Service Department can offer advice on suitable processing equipment.

Recommended Processing Temperatures

ROTAKOTE™ K3/65A Curative 20 – 30°C

ROTAKOTE™ K3/95A Curative 20 – 30°C

ROTAKOTE™ 5137 Prepolymer 60 – 80°C

These are typical values and should not be construed as specifications.

Material Preparation

Polyol component

The polyol component ROTAKOTE™ K3/95A Curative is an amber to dark brown liquid at the recommended storage temperature of 0 – 30°C.

The polyol component ROTAKOTE™ K3/65A Curative solidifies at temperatures below 15-20 °C. For this reason melting might be required to liquify the material. After melting the material should be brought to the processing temperature. Heat is required to liquefy the polyol ROTAKOTE™ K3/65A Curative and / or to condition the polyol to the processing temperature. It is recommended that the polyol be warmed slowly either:

- in an air circulating oven (preferred) or a hot box,
- with a drum blanket,
- with band heaters

Melting by rolling the drum inside the air circulated oven is the most effective method of melting the material. Temperatures up to 50°C are recommended.

CAUTION: Exposure to temperatures above 50°C should be avoided as this will lead to degradation of the product.

It is recommended that the warming/melting process should be carefully controlled, taking care to avoid overheating or heating for extended periods of time. Hot spots can cause degradation and should, therefore, be avoided. In general, warming for a longer time period at a lower temperature (40°C) is preferred compared to a short time period at a higher temperature (50°C).

Typically, at 45-50°C:

- a 200kg drum requires 24 – 48 hours,
- although this will depend on the initial temperature of the material and the heat distribution efficiency of the heating method. **It is recommended that the optimum conditions for a particular application are determined experimentally by the user.**

It is recommended that the polyol component is NOT stored:

- at 40 °C for greater than 2 week;
- at 50 for greater than 3 days.

In each case this assumes unopened, tightly sealed containers.

Please Note: It is essential that the polyol component is thoroughly rolled / mixed before use.

Strong turbulence and mixing with air should be kept to a minimum by adopting a careful mixing technique (e.g. drum/keg rolling) or using low air introducing mixers. It is recommended that any air introduced during mixing is subsequently removed through degassing by either machine or vacuum chamber. It is the responsibility of the customer to ensure that the product is mixed and degassed sufficiently for use.

Isocyanate component

ROTAKOTE™ 5137 Prepolymer is a pale yellow, high viscosity, stable liquid at the recommended storage temperature of 10 – 30°C. Heat is required to condition the prepolymer ROTAKOTE™ 5136 to the processing temperature. It is recommended that the prepolymer be warmed slowly either:

- in an air circulating oven (preferred) or a hot box,
- with a drum blanket,
- with band heaters.

Melting by rolling the drum inside the air circulated oven is the most effective method of melting the material.

Temperature between 60 – 80 °C are recommended, temperatures above 60 °C simplify material handling and degassing of the material due to reduced viscosity. Temperatures up to 80°C are recommended.

CAUTION: Exposure to temperatures above 80°C should be avoided as this will lead to degradation of the product.

Further information can be found in Dow's information sheet 'Safe Handling – Pure, Modified and Polymeric MDI' Form No. 109-01224X-1009P&M.

It is recommended that the warming/melting process should be carefully controlled, taking care to avoid overheating or heating for extended periods of time. In general, warming for a longer time period at a lower temperature (60°C) is preferred compared to a short time period at a higher temperature, although the exact time/temperature combination will depend on the initial temperature of the material and the heat distribution efficiency of the heating method. **It is recommended that the optimum conditions for a particular application are determined experimentally by the user.**

Typically, at 60°C:

- a 200kg drum requires 24 – 48 hours,

although this will depend on the initial temperature of the material and the heat distribution efficiency of the heating method. **It is recommended that the optimum conditions for a particular application are determined experimentally by the user.**

It is recommended that the isocyanate component is NOT stored:

- at 60°C for greater than 10 days
- at 80°C for greater than 5 days

In each case this assumes unopened, tightly sealed containers.

Surface Preparation

Any previous covering must be removed and the roller core clean and free from grease or dirt. Shot-blasting to a deep profile and priming with HYPERLAST™ Primer 4016 is recommended – refer to datasheet Form No. 628-00327.

Processing Parameters

Optimum machine settings for ROTAKOTE™ systems will vary dependent on roller diameter and thickness requirements. Our Technical Service Department can offer advice on typical application settings.

Recommended Cure Cycle

After coating rollers should be stored using the core ends, no weight should be applied on the elastomer for a period of 24 hours. Following this period, the elastomer can be machined to the required finish. Full properties should be achieved after approximately 7 days at 20°C.

Storage and Handling

		Shelf life
Polyol Component	Store in tightly sealed containers at a temperature of 0 - 30°C. Raise to the processing temperature and mix well before use. Avoid contact with moisture. Storage at low temperatures may result in freezing of the polyol component, should this occur it should be melted out by raising to the processing temperature and mixed thoroughly before use.	12 months
Isocyanate Component	Store in tightly sealed containers at a temperature of 10 - 30°C. Avoid contact with moisture. Storage below the recommended minimum temperature may result in freezing of the Isocyanate. If the Isocyanate does not fully melt out when raised to the processing temperature it may be necessary to re-melt at a temperature of 60 - 70°C following the procedures laid down in the information sheet 'Safe Handling – Pure, Modified and Polymeric MDI' Form No. 109-01224X-1009P&M.	6 months

More detailed information on the storage and handling of polyurethane components can be obtained by contacting Dow Technical Service Department.

Packaging

Polyol Component	25 kg, 200 kg
Isocyanate Component	25 kg, 200 kg

Product Stewardship

The Dow Chemical Company and its subsidiaries ("Dow") has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our Product Stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Safety Considerations

Safety Data Sheets (SDS) are available from The Dow Chemical Company (Dow). SDS are provided to help customers satisfy their own handling, safety and disposal needs, and those that may be required by locally applicable health and safety regulations. SDS sheets are updated regularly. Therefore, please request and review the most current SDS before handling or using any product. Copies of the SDS are available on request through the nearest Dow Sales office.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to help ensure that Dow products are not used in ways for which they were not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products.

Contact information:

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