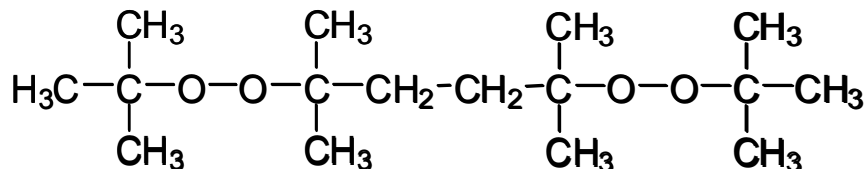


## DHBP-45-IC2

2,5-Dimethyl-2,5-di (tert.butylperoxy) hexane  
CAS#78-63-7  
45%, powder  
Molar mass: 290.4 g/mol

### Structural Formula



### Description

White free-flowing powder, consisting of approx. 45 % 2,5-dimethyl-2,5-di(tert.butylperoxy) hexane, de-sensitised with chalk with a silica flow agent. This bifunctional dialkyl peroxide is used as an initiator (radical source) in the crosslinking of silicone rubber at above 170°C.

### Technical Data

Appearance	white powder
Peroxide content	approx. 45% w/w
Active oxygen	approx. 5.1% w/w
De-sensitising agent	chalk with silica flow agent
Bulk density	approx. 0.51 kg/l
Critical temperature (SADT)	approx. 90 °C
Recommended storage temperature	below 40 °C
Storage stability as from date of delivery	12 months

This product is in compliance with the ElektroG (E U-Directives: RoHS 2002/95/EG, WEEE 2002/96/EG)

### Half-life-time

10 h/1 h/1 min (0.1 m/benzene): 120/142/190 °C

### Application

#### POLYMER-CROSSLINKING:

A peroxidic crosslinking agent for many polymers and elastomers, especially polyethylene (LDPE, HDPE), ethylene/vinyl acetate copolymer (EVA or EAM), ethylene/propylene/(diene)rubber (EPM, EPDM), silicone rubber (VMQ) and fluor elastomers (FKM).

Crosslinking temperature: above 170°C. Below 140°C no premature crosslinking (scorch) occurs.

Usage level: 1-6 % of product as supplied on material to be cross-linked. With a few unreactive polymers, crosslinking efficiency can be improved by the addition of 1-5% of coagents (e.g. TAC or EDMA).

## SPECIAL ADVANTAGES:

Efficient and very versatile. The powder form facilitates mixing and homogenisation. Volatile, odour free decomposition products, and no blooming on the vulcanisate surface.

## Measurements - Crosslinking Performance

Influence of temperature on crosslinking time

Vulcanisation of EPDM. Light colour cable sheathing compound with 4 parts w/w

DHBP-45-IC2 within Monsanto-rheometer 100-S (torsion angle 1°, chamber volume 7.3 cm<sup>3</sup>)\*

Temperature [°C]	140	150	160	170	180	190	200
Scorch-time [min]	18	6.0	3.5	2.0	1.3	1.0	0.7
Crosslinking time t <sub>50</sub> [min]	-	-	15	6.6	3.4	2.1	1.4
Crosslinking time t <sub>90</sub> [min]	-	-	38	20	8.3	4.3	2.4

Influence of peroxide level on properties of vulcanisates

Vulcanisation of EPDM at 180 °C. Light colour cable sheathing compound

Formulation (parts w/w): 100 EPDM, 120 kaolin, 30 chalk, 25 plasticiser

1 stabiliser, 1 vinyl silande, 3 wax, 5 zinc oxide, 1 TAC, 3-7 DHBP-45-IC2

DHBP-45-IC2 [parts by weight]	3	4	5	6	7
Crosslinking time t <sub>90</sub> [min]	8.5	8,3	8.1	7.2	6.2
max. Torque [Nm]	4.1	4.5	4.9	5.3	5.4
Tensile strength [Nm/mm <sup>2</sup> ]	6.7	6.9	7.3	7.1	7.1
200 % Modul [Nm/mm <sup>2</sup> ]	4.5	4.8	5.7	5.8	5.9
Elongation [%]	400	370	350	300	280
Shore A Hardness	66	69	70	71	72
Compression set *[%]	15	15	13	12	12

\*) 22 h at 100 °C

## Crosslinking properties with silicone rubber (HTV)

VMQ-Crosslinking (Wacker R 401/60-U)

with Monsanto-Rheometer 100-S (tosionsangle 3°, Chamer volume 7.3 cm<sup>3</sup>)

Influence of temperature on crosslinking activity (0.60 % DHBP-45-IC2/o.03% AO)

Temperature [°C]	160	180	200
Scorch-time [min]	3.1	1.1	0.8
Crosslinking time t <sub>50</sub> [min]	5.5	1.8	1.1
Crosslinking time t <sub>90</sub> [min]	11.1	3.1	1.6

Influence of dosage on physical properties (Temperature: 150°C)

DHBP-45-IC2 [%AO]	0.02	0.03	0.04
DHBP-45-IC2 [%w/w]	0.40	0.60	0.81
Crosslinking time t <sub>90</sub> [min]	4	3.1	3
max. Torque [Nm]	29.6	29.8	29.4
Tensile strength [Nm/mm <sup>2</sup> ]	11.6	12.3	11.3
400% Modul [N/mm <sup>2</sup> ]	4	4.2	4
Elongation [%]	851	824	821
Shore A Hardness	60	61	61
Rebound [%]	63	62	62.5

## Standard Packaging

25 kg (55,1 lb), plastic bags in cardboard boxes

## Disclaimer

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