Technical Data Sheet

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NOROX® DCP-40CC & -40BKC

CAS#80-43-3 CAS#80-43-3
1317-65-3 66402-68-4

Description

Norox® DCP-40CC & -40BKC are formulated products composed of 40% dicumyl peroxide and 60% inert filler, by weight, in powder form. The inert filler in Norox® DCP-40CC is calcium carbonate, and Norox® DCP-40BKC uses Burgess kaolin clay as its inert filler. Use of these diluted forms of dicumyl peroxide offers the compounder more uniform mixing with the compound batch, as well as lessening the inherent hazards of storing and handling peroxide compounds.

Technical Data

	DCP-40CC	DCP-40BKC
Peroxide Content	40%	40%
Active Oxygen	2.36%	2.36%
Appearance	White Powder	White Powder
Specific Gravity @ 20°C, g/cc	1.60	1.56
Viscosity	16.0 cps	16.0 cps
Flash Point (SETA C.C.)	260˚F / 127˚C	260˚F / 127˚C
Inert Filler (Calcium Carbonate)	60%	
Inert Filler (Burgess Kaolin Clay):		60%
Critical temperature (SADT)	<158˚F (70˚C)	<158˚F (70˚C)
Recommended storage temperature	≤80 ˚F (27˚C)	≤80 ˚F (27˚C)

Application

Norox® DCP-40CC & -40BKC uses are:

- Vulcanizing agent for synthetic elastomers such as ethylene-propylene (EPDM and EPM), styrene-butadiene (SBR), acrylonitrile-butadiene, polyurethane and silicone; polybutadiene rubbers; and neoprene.
- Cross-linking agents for polyethylene, polyvinyl-chloride, ethylene-vinyl acetate copolymer, and chlorinated polyethylene.
- Finish cure initiators for elevated temperature curing of unsaturated polyester resins in premix and prepreg processes.

The cross-linked polymers are used in wire and cable insulation, foamed products, rubber articles and technical products. The particular nature of the Kaolin filler in Norox® DCP-40BKC makes this product especially suitable as a cross-linking agent for EPM and LDPE in medium and high voltage insulated cables.

When used as a vulcanizing or cross-linking agent, Norox® offer the following advantages when compared to other peroxides:

- High cross-linking efficiency, and
- Short vulcanization times.

In practical applications, the vulcanization times can vary according to process conditions, compound composition, and molded part thickness. The amount of Norox® DCP-40CC & -40BKC required will be determined by the desired characteristics of the finished product.

FILLERS
Various compound additives can influence the effectiveness of the Norox® DCP-40CC & -40BKC. While many types of fillers such as carbon black, precipitated silica, Kaolin, calcium carbonate, etc. have relatively little effect, care should be taken when using acidic fillers. These acidic fillers, such as channel blacks and hard-clay silicas, can detrimentally increase the rate of peroxide decomposition. In some cases this can be offset by the addition of basic, or alkaline, substances like metallic oxides or amines.

PLASTICIZERS
The most suitable are low unsaturation paraffin based oils and polyalkylbenzenes. Aromatic oils and more importantly, naphthenic oils, can influence the cross-linking process. Phenolic plasticizers with acidic properties should not be used.

ZINC OXIDE & STEARIC ACID
Zinc oxide is used to improve the physical properties of vulcanized parts, especially heat aging. Stearic acid may be necessary to improve filler dispersion; however, the acidic nature has a detrimental effect on the vulcanization process. This can often be offset by addition of zinc oxide.

ANTIOXIDENTS & STABILIZERS
The presence of antioxidants often has a synergistic effect on the peroxide curing which will improve the heat stability of the finished product, Phenolic and amine stabilizers greatly reduce the cross-linking efficiency of the peroxide, but good results have been obtained using mercaptobenzoimidazole or quinine dioxime derivatives.

COAGENTS
These products are used to increase the vulcanization efficiency by stabilizing the radical generated on the polymer chain which leads to vulcanization rather than to decomposition of the polymer chain. Commonly used coagents are 1,5-difurfuryl-1,4 pentadiene-3-one, difurfural aldazine, ethylene glycol dimethylmethacrylate, triallylcyanurate, liquid polybutadiene, and sulfur.

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Measurements

THERMAL DECOMPOSITION DATA (Half-Life in Benzene)

Temperature	116°C	134°C	172°C
Time	10 hrs.	1 hr.	0.1 hr.

Half-life data is generated by using 0.2 moles/liter of the specific peroxide dissolved in a solvent, generally benzene. The half-life of this highly diluted peroxide is the time required for decomposition of one-half of the peroxide. The rate of decomposition is directly related to the rate of generation of free-radicals, and this half-life data can provide guidance in the selection of the optimum peroxide for a given application. This half-life data is specific to the solvent used and applies to thermal decomposition rather than activated decomposition.

Standard Packaging

- The standard package sizes are fiber drums containing 1 X 50kg or 10 X 5kg bags.

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Revision number: 1.0. Date: 03.03.14. Device M: TDS.