ORGANIC PEROXIDES / Polymer crosslinking
ORGANIC PEROXIDES PRODUCT RANGE FOR CROSSLINKING

### ARKEMA, INNOVATIVE CHEMISTRY

The Arkema group is one of the main global producers of organic peroxides. Its expertise also extend to glass coatings, additives for PVC, catalysts for synthesis in fine chemicals, polyester resins and specialty epoxides. The Organic peroxides activity, headquarter in King of Prussia (United States), operates facilities throughout the world. Its products, services and technical support are available to customers in Europe, North America, Asia, Africa and the Middle East.

Arkema is building the future of the chemical industry using a responsible, innovation-based approach.

France’s leading chemicals producer, Arkema is aiming to become one of the global leaders in specialty chemicals. With its 14,000 employees and 91 industrial sites in 40 countries, Arkema has a revenue of €6.4 billion. The Arkema group was created in October 2004, following the reorganization of Tara’s Chemicals branch. Thanks to innovation, targeted acquisitions and investments in emerging countries, it has become a recognized world player in the field of specialty chemicals.

### CONTENTS

<table>
<thead>
<tr>
<th>FAMILY NAME</th>
<th>CHEMICAL NAME</th>
<th>CHEMICAL FORMULA</th>
<th>PRODUCT NAME</th>
<th>PHYSICAL FORM</th>
<th>ASSAY (%)</th>
<th>ACTIVE OXYGEN</th>
<th>CARRIER</th>
<th>UN</th>
<th>SADT</th>
<th>STORAGE TEMPERATURE (°C)</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUPEROX® F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUPEROX® DCBP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The half-life of a peroxide at any specified temperature is the time required at that temperature to affect a loss of one half of the peroxide's active oxygen content.

Half-life data is essential for selecting the optimum peroxide for a specific time-temperature combination.

Peroxide half-life data is generated by studying their thermal decomposition in various solvents at low concentrations. The polarity of the solvent used will influence the peroxide decomposition kinetics. Thus it is important to compare peroxide half-life data generated in the same solvent and at the same concentration.

It is possible to estimate the quantity of reacted organic peroxide as a function of time. In the following graphs various peroxides are compared for an easy selection based on decomposition rate at given temperatures.
**CROSSLINKING DENSITY**

These data were generated using an ODR2000E rheometer. MH (Nm) is a torque measurement which is proportional to the relative amount of crosslinking bonds created by the peroxide. It is an indication of the mechanical properties to be expected.

**SUGGESTED DOSAGE RATE OF LUPEROX® ORGANIC PEROXIDES IN SOME POLYMERS**

<table>
<thead>
<tr>
<th>PHR OF ACTIVE SUBSTANCE</th>
<th>LUPEROX® F</th>
<th>LUPEROX® DCP</th>
<th>LUPEROX® 101</th>
<th>LUPEROX® 130</th>
<th>LUPEROX® 801</th>
<th>LUPEROX® 230</th>
<th>LUPEROX® 231</th>
<th>LUPEROX® DCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDPE</td>
<td>1.2 - 1.8</td>
<td>1.5 - 2.5</td>
<td>1.4 - 2.0</td>
<td>1.2 - 2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDPE</td>
<td>0.8 - 1.6</td>
<td></td>
<td>0.5 - 1.2</td>
<td>0.5 - 1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVA</td>
<td>0.8 - 1.6</td>
<td>1.2 - 2.0</td>
<td>1.2 - 2.0</td>
<td>1.0 - 1.6</td>
<td>1.4 - 2.6</td>
<td>1.2 - 2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPM/EPDM</td>
<td>1.6 - 3.2</td>
<td>2.4 - 3.4</td>
<td>1.7 - 3.4</td>
<td>3.2 - 6.3</td>
<td>2.4 - 6.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorinated polyethylene</td>
<td>1.5 - 2.4</td>
<td>2.4 - 3.8</td>
<td>2.5 - 4.0</td>
<td>3.3 - 6.0</td>
<td>3.0 - 5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicone rubber</td>
<td>0.2 - 1.0</td>
<td>0.5 - 2.0</td>
<td>0.4 - 1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butadiene acrylonitrile rubber</td>
<td>0.5 - 1.5</td>
<td>0.9 - 1.7</td>
<td>1.1 - 2.0</td>
<td>1.2 - 2.2</td>
<td>1.0 - 2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBR</td>
<td>0.4 - 1.0</td>
<td>0.7 - 1.5</td>
<td>0.7 - 1.2</td>
<td>0.8 - 1.8</td>
<td>0.7 - 1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: Typically, 1.6 to 3.2 phr of Luperox® F are used in an EPDM compound. For formulated peroxide, this quantity has to be divided by the peroxide content. Therefore, 4 to 6 phr of Luperox® F40 is the typical range of quantities used for an EPDM compound.

**CURE TIME**

These data were generated using an ODR2000E rheometer. This graph shows the cure time represented by T90, which is the time needed at a specific temperature to get 90% of the peroxide decomposed. This key feature of the peroxide is to be taken into account when selecting the proper peroxide.

**SCORCH TIME**

The below data were generated using a Mooney viscometer. Ts05 is the scorch time at the processing temperature (usually at the polymer extrusion temperature).

This value represents the time during which the vulcanizable compound can be safely processed before unwanted crosslinking or “scorch” takes place. Ts05 is defined by the time needed at a specific temperature to obtain a 5 Mooney Unit increase in the viscosity as measured from the MV or minimum viscosity.

**Mooney scorch Ts05 vs. temperature in an EPDM compound**

<table>
<thead>
<tr>
<th>PHR OF ACTIVE SUBSTANCE</th>
<th>LUPEROX® F</th>
<th>LUPEROX® DCP</th>
<th>LUPEROX® 101</th>
<th>LUPEROX® 130</th>
<th>LUPEROX® 801</th>
<th>LUPEROX® 230</th>
<th>LUPEROX® 231</th>
<th>LUPEROX® DCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDPE</td>
<td>0.8 - 1.6</td>
<td></td>
<td>0.5 - 1.2</td>
<td>0.5 - 1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDPE</td>
<td>0.8 - 1.6</td>
<td></td>
<td>1.2 - 2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVA</td>
<td>0.8 - 1.6</td>
<td></td>
<td>1.2 - 2.0</td>
<td>1.0 - 1.6</td>
<td>1.4 - 2.6</td>
<td>1.2 - 2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPM/EPDM</td>
<td>1.6 - 3.2</td>
<td>2.4 - 3.4</td>
<td>1.7 - 3.4</td>
<td>3.2 - 6.3</td>
<td>2.4 - 6.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorinated polyethylene</td>
<td>1.5 - 2.4</td>
<td>2.4 - 3.8</td>
<td>2.5 - 4.0</td>
<td>3.3 - 6.0</td>
<td>3.0 - 5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicone rubber</td>
<td>0.2 - 1.0</td>
<td>0.5 - 2.0</td>
<td>0.4 - 1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butadiene acrylonitrile rubber</td>
<td>0.5 - 1.5</td>
<td>0.9 - 1.7</td>
<td>1.1 - 2.0</td>
<td>1.2 - 2.2</td>
<td>1.0 - 2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBR</td>
<td>0.4 - 1.0</td>
<td>0.7 - 1.5</td>
<td>0.7 - 1.2</td>
<td>0.8 - 1.8</td>
<td>0.7 - 1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: Typically, 1.6 to 3.2 phr of Luperox® F are used in an EPDM compound. For formulated peroxide, this quantity has to be divided by the peroxide content. Therefore, 4 to 6 phr of Luperox® F40 is the typical range of quantities used for an EPDM compound.
Luperox® FreeO offers to footwear manufacturers an alternative to current technologies commonly used. Sport shoes with soles made of expanded EVA are known for releasing a strong and persistent odour in manufacturing plants, as well as in retail outlets. This smell is due to the crosslinking agent and its VOCs (Volatile Organic Compounds), in particular acetophenone.

Luperox® FreeO offers:
- small amounts of VOC released;
- no release of unpleasant odor;
- outstanding crosslinking efficiency (up to 40% lower dosage);
- easy use thanks to its flake form.

Luperox® FreeO is a bis isopropyl benzene peroxide.

Under typical working conditions organic peroxide decomposes in different molecules.

Dicumyl peroxide decomposes in acetophenone (52% of total amount), cumyl alcohol and methane. Acetophenone is characterised by a strong and persistent smell.

Luperox® FreeO decomposes in molecules different in composition and properties. These decomposition products are considered neither smelling nor persistent volatiles. Luperox® FreeO does not contain additives added to mask the odour.

Thanks to its characteristics, Luperox® FreeO is an excellent crosslinking agent for a large range of rubbers allowing reduction of peroxide consumption up to 37%.

Luperox® FreeO is available as pure in flake form and it allows easy handling and easy weighing.

Luperox® FreeO-40 is the diluted version on calcium carbonate in granule form.

Arkema Scorch Protection technology is a unique technology that provides outstanding protection against scorch both at mixing and crosslinking temperatures.

By increasing the scorch time during mixing and extrusion of the rubber compound, "SP" peroxides are the right technology which allows:
- better process control;
- higher product quality;
- higher productivity.

The "SP2" peroxide is the ultimate generation of scorch protection, designed for very scorchy elastomers such as HNBR and very challenging curing conditions such as high injection molding temperature. The Arkema Scorch protection system is an Arkema’s patent.

As it allows to work at higher process temperature without generating scorch, the Arkema Scorch Protection technology allows the increase of process speed leading to the increase of productivity in all applications, including extrusion and moulding.

As it allows to work at higher process temperature without generating scorch, the Arkema Scorch Protection technology allows the increase of process speed leading to the increase of productivity in all applications, including extrusion and moulding.

Productivity increase benefit

8 phr peroxide in EPM compound

Crosslinking density test demonstrate that Luperox® FreeO does provide the same crosslinking density at 37% lower loading, or higher crosslinking density at the same loading rate.

Crosslinking density test demonstrate that Luperox® FreeO does provide the same crosslinking density at 37% lower loading, or higher crosslinking density at the same loading rate.

Luperox® FreeO does generate 68% lower VOC than DCP. Luperox® FreeO decomposition products are methane, acetone and t-butanol, characterised by low boiling point.

Thanks to its higher efficiency and its composition, Luperox® FreeO generates much lower organic volatiles than other peroxides.

**EXCELLENT COST/PERFORMANCE FEATURES**

SCORCH PROTECTION SOLUTION

SMELL FREE SOLUTION

Luperox® FreeO offers a footwear manufacturers an alternative to current technologies commonly used. Sport shoes with soles made of expanded EVA are known for releasing a strong and persistent odour in manufacturing plants, as well as in retail outlets. This smell is due to the crosslinking agent and its VOCs (Volatile Organic Compounds), in particular acetophenone.

Luperox® FreeO offers:
- small amounts of VOC released;
- no release of unpleasant odor;
- outstanding crosslinking efficiency (up to 40% lower dosage);
- easy use thanks to its flake form.

Luperox® FreeO is a bis isopropyl benzene peroxide.

Under typical working conditions organic peroxide decomposes in different molecules.

Dicumyl peroxide decomposes in acetophenone (52% of total amount), cumyl alcohol and methane. Acetophenone is characterised by a strong and persistent smell.

Luperox® FreeO decomposes in molecules different in composition and properties. These decomposition products are considered neither smelling nor persistent volatiles. Luperox® FreeO does not contain additives added to mask the odour.

Thanks to its characteristics, Luperox® FreeO is an excellent crosslinking agent for a large range of rubbers allowing reduction of peroxide consumption up to 37%.

Luperox® FreeO is available as pure in flake form and it allows easy handling and easy weighing.

Luperox® FreeO-40 is the diluted version on calcium carbonate in granule form.

Arkema Scorch Protection technology is a unique technology that provides outstanding protection against scorch both at mixing and crosslinking temperatures.

By increasing the scorch time during mixing and extrusion of the rubber compound, "SP" peroxides are the right technology which allows:
- better process control;
- higher product quality;
- higher productivity.

The "SP2" peroxide is the ultimate generation of scorch protection, designed for very scorchy elastomers such as HNBR and very challenging curing conditions such as high injection molding temperature. The Arkema Scorch protection system is an Arkema’s patent.

As it allows to work at higher process temperature without generating scorch, the Arkema Scorch Protection technology allows the increase of process speed leading to the increase of productivity in all applications, including extrusion and moulding.

As it allows to work at higher process temperature without generating scorch, the Arkema Scorch Protection technology allows the increase of process speed leading to the increase of productivity in all applications, including extrusion and moulding.

PRODUCTIVITY INCREASE BENEFIT

As it allows to work at higher process temperature without generating scorch, the Arkema Scorch Protection technology allows the increase of process speed leading to the increase of productivity in all applications, including extrusion and moulding.

8 PHR PEROXIDE IN EPM COMPOUND

Crosslinking density test demonstrate that Luperox® FreeO does provide the same crosslinking density at 37% lower loading, or higher crosslinking density at the same loading rate.

Crosslinking density test demonstrate that Luperox® FreeO does provide the same crosslinking density at 37% lower loading, or higher crosslinking density at the same loading rate.

**EXCELLENT COST/PERFORMANCE FEATURES**

Luperox® FreeO does generate 68% lower VOC than DCP.

Luperox® FreeO decomposition products are methane, acetone and t-butanol, characterised by low boiling point.

Thanks to its higher efficiency and its composition, Luperox® FreeO generates much lower organic volatiles than other peroxides.

**LOWER VOC GENERATION**

Crosslinking density test demonstrate that Luperox® FreeO does provide the same crosslinking density at 37% lower loading, or higher crosslinking density at the same loading rate.
Soaking of polymer pellets

Internal mixer

Direct peroxide injection

Direct screw compounding without injection

Polymer pellets that can be crosslinked:
- Polyacrylate rubber
- Chlorobutyl rubber
- Epichlorohydrin rubber
- Epichlorohydrin copolymer
- Butyl rubber
- Polybutene-1
- Polyisobutene
- Polyvinylchloride
- Polypropylene

Polymer pellets that cannot be crosslinked:
- Acrylonitrile butadiene styrene copolymer
- Polyurethane rubber
- Polybutadiene rubber
- Chlorinated polyethylene
- Polychloroprene rubber
- Chlorosulfonyl polyethylene
- Ethylene butylacrylate copolymer
- Ethylene propylene copolymer
- Ethylene propylene diene terpolymer
- Ethylene vinylacetate copolymer
- Fluoro rubber
- Hydrogenated butadiene acrylonitrile rubber
- Polyisoprene rubber
- Butadiene acrylonitrile rubber
- Natural rubber
- Polyethylene
- Polyolefin elastomer
- Silicone rubber
- Styrene butadiene rubber
- Polysulfide rubber
- Ethylene ethyl acrylate

Selection / suggested mixing technology

<table>
<thead>
<tr>
<th>Masterbatches</th>
<th>Liquid Grades</th>
<th>Granules</th>
<th>Powders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soaking of polymer pellets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal mixer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open mill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct peroxide injection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct screw compounding without injection</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selection / why to use masterbatch

Experiments were performed with an EPDM compound in a Brabender type internal mixer.

Standard deviation of MH was determined using an ODR2000E rheometer after different times of compounding. The times reported in this graph are the mixing times required to obtain an acceptable standard deviation in MH from batch to batch, comparing the various commercially available forms of di-(t-butylperoxy)diisopropylbenzene.

Pre-dispersed peroxide masterbatches dramatically shorten mixing time and improve the quality of the elastomer by avoiding premature crosslinking or “scorch” in hard or soft compounds.

Masterbatch peroxides are preferred in technical rubber articles production because they provide uniform peroxide dispersion and consistent physical properties.
A global chemical company and France’s leading chemicals producer, Arkema is building the future of the chemical industry every day. Deploying a responsible, innovation-based approach, we produce state-of-the-art specialty chemicals that provide customers with practical solutions to such challenges as climate change, access to drinking water, the future of energy, fossil fuel preservation and the need for lighter materials. With operations in more than 40 countries, some 14,000 employees and 10 research centers, Arkema generates annual revenue of approximately 6.4 billion, and holds leadership positions in all its markets with a portfolio of internationally recognized brands.

The information contained in this document is based on trials carried out by our Research Centres and data selected from the literature, but shall in no event be held to constitute or imply any warranty, undertaking, express or implied commitment from our part. Our formal specifications define the limit of our commitment. No liability whatsoever can be accepted by Arkema with regard to the handling, processing or use of the product or products concerned which must in all cases be employed in accordance with all relevant laws and/or regulations in force in the country or countries concerned.

The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, ARKEMA expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before commercialization. Nothing contained herein constitutes a license to practice under any patent and it should not be construed as an inducement to infringe any patent and the user is advised to take appropriate steps to be sure that any proposed use of the product will not result in patent infringement. See MSDS for Health & Safety Considerations.