



**Polymer Manufacturing
& Processing**

Product Range

We initiate value

United Initiators ("UI") is the largest, focused global producer of specialty chemical initiators and the only player worldwide providing a full range of both organic peroxides and persulfates (inorganic peroxides). We are the leading manufacturer of persulfates and among the top three suppliers of organic peroxides worldwide. Our network allows us to serve our customers both on a local and global scale. Supply reliability and quality are critical when it comes to peroxides and this is one of the key factors why customers choose United Initiators.

Our products are essential ingredients for many applications and products in our daily life and are necessary to produce a large range of polymers and polymer-based materials. The application of our products goes well beyond polymers. They are used in consumer areas such as hair bleaching, disinfection, denture cleansing and tooth whitening. Industrial applications include etching of printed circuit boards, chemical synthesis, oil & gas exploration, soil remediation and many more. Continuous improvement and innovation on all levels enables us to effectively respond to changing and growing market needs.

Safety is a very crucial factor to be successful in our industry. United Initiators adheres to highest safety standards in production and the entire supply chain. We offer all our customers in-depth service and training to handle our products in a safe and efficient manner. In our daily global operations our continuous focus is on maintaining high environmental standards. Sustainability is another focal point within our organization and we are committed to optimizing our processes and enhancing our energy efficiency.

It is among our primary goals to serve our customers with products of consistent quality and highly reliable services. We continuously optimize our operations and supply chain to assure high safety and overall reliability. Our global footprint allows us to offer services both to regional and global customers in an effective manner.

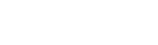
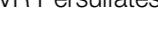
Locations

United Initiators is a global company with headquarters in Pullach/Germany and operations in various sites in North America, Asia and Australia.



A Leading Peroxide Producer - Serving a Growing World

More than 100 years of experience make us the leading global provider of organic peroxides, persulfates and specialty products. The company's history has been marked by constant and sometimes profound changes: through mergers, acquisitions and joint ventures as well as through market and product development. This has created United Initiators, the globally leading manufacturer fully focused on peroxides. Our strong position makes us the right partner to "drive your success".

| | | |
|-------------|---|---|
| 2020 |  PeroxylChem | Acquisition of H ₂ O ₂ plant in Canada |
| 2019 |  HP | Acquisition of Hidrojen Peroksit |
| 2018 |  VR | Joint Venture with VR Persulfates |
| 2016 |  Equistone | Equistone acquires majority stake |
| 2012 |  Syrgis | Acquisition of Syrgis |
| 2008 |  UNITED INITIATORS driving your success | United Initiators |
| 2007 |  EVONIK INDUSTRIES | Evonik Industries |
| 2001 |  degussa. | Degussa acquires Laporte |
| 1994 |  AZTEC | Laporte acquires Aztec Catalysts |
| 1968 |  Peroxid-Chemie | Peroxid-Chemie |
| 1961 |  LAPORTE ORGANICS | Laporte Organics |
| 1911 |  Elektrochemische Werke München | Elektrochemische Werke München |
| 1909 | Patent for the production of Hydrogen Peroxide | 1970 Joint Venture of Laporte and SOLVAY forms Interrox |
| 1911 | Foundation of Elektrochemische Werke Adolph & Pietzsch | 1992 Demerger of the Interrox Group, Peroxid-Chemie becomes again a 100% Laporte subsidiary |
| 1928 | Merck AG becomes shareholder. Conversion into EWM AG | 2001 Takeover of Laporte by Degussa |
| 1930's | Inorganic Peroxide production | 2004 Peroxid-Chemie becomes Degussa Initiators |
| 1935 | Breakthrough: Concentration of Hydrogen Peroxide solutions up to 81%, fuel for submarines and aero planes | 2007 Degussa becomes Evonik Industries |
| 1936 | Production of sodium percarbonate begins | 2008 Sale to Speyside Equity. Birth of United Initiators |
| 1938 | Production of carbamide peroxid | 2012 Acquisition of Syrgis Performance Initiators |
| 1944 | 80% of the Pullach plant destroyed in an air-raid | 2016 Equistone acquires majority stake alongside current management |
| 1954 | Entry into the field of organic chemistry (Organic Peroxides) | 2018 Joint Venture of United Initiators and VR Persulfates |
| 1961 | Takeover by Laporte Industries, new Hydrogen Peroxide process | 2019 Acquisition of Hidrojen Peroksit in Turkey |
| | | 2020 Acquisition of the Hydrogen Peroxide plant from Evonik Industries in Canada |

| PRODUCT CODE | CHEMICAL STRUCTURE | SUPPLY FORM | PEROXIDE CONTENT | ACTIVE OXYGEN | STANDARD PACKAGING | SAFETY INFORMATION | APPLICATION | | | | | | | | | | | | |
|--|--------------------|------------------------------|------------------|---------------|--------------------|--------------------|-------------|------|-------|-------|-------|--------------------------|--------------------------|-----|-------------|--------------|----------------------------|-----------|----------|
| | | | | | | | % | % | °C/°F | °C/°F | °C/°F | min. Storage Temperature | max. Storage Temperature | PVC | Polyolefins | Crosslinking | Curing of Thermoset Resins | Styrenics | Acrylics |
| Organic Peroxides | | | | | | | | | | | | | | | | | | | |
| Cumyl peroxyneodecanoate (CAS No. 26748-47-0) | | 75%, solution in aliphatics | 75 | 3.9 | HDPE canisters | 15/59 | -10/14 | - | -15/5 | ● | | | | | | | | | |
| CUPND-75-AL | | 75%, solution in aliphatics | 75 | 3.9 | HDPE canisters | 15/59 | -10/14 | - | -15/5 | ● | | | | | | | | | |
| 1,1,3,3-Tetramethylbutyl peroxyneodecanoate (CAS No. 51240-95-0) | | 70%, solution in isododecane | 70 | 3.7 | HDPE canisters | 15/59 | -5/23 | - | -15/5 | ● | | | | | | | | | |
| TOPND-70-AL | | 70%, solution in isododecane | 70 | 3.7 | HDPE canisters | 15/59 | -5/23 | - | -15/5 | ● | | | | | | | | | |
| tert-Amyl peroxyneodecanoate (CAS no. 68299-16-1) | | | | | | | | | | | | | | | | | | | |
| TAPND-75-AL | | 75%, solution in aliphatics | 75 | 4.6 | HDPE canisters | 20/68 | 0/32 | - | -15/5 | ● ● | | | | | | | | | |
| TAPND-75-AL1 (US) | | 75%, solution in aliphatics | 75 | 4.6 | HDPE canisters | 20/68 | 0/32 | - | -15/5 | ● ● | | | | | | | | | |
| Di(2-ethylhexyl)peroxydicarbonate (CAS no. 16111-62-9) | | 75%, solution in aliphatics | 75 | 3.5 | HDPE canisters | 5/41 | -15/5 | - | -15/5 | ● ● | | | | | | | | | |
| EHPC-75-AL | | 60%, non freezing emulsion | 60 | 2.8 | IBC | 5/41 | -5/41 | - | -15/5 | ● | | | | | | | | | |
| EHPC-60-ENF2 | | 60%, non freezing emulsion | 60 | 2.8 | IBC | 5/41 | -5/41 | - | -15/5 | ● | | | | | | | | | |
| Di(4-tert-butylcyclohexyl) peroxydicarbonate (CAS no. 15520-11-3) | | | | | | | | | | | | | | | | | | | |
| BCHPC | | powder, technically pure | 95 | 3.8 | cartons | 45/113 | 30/86 | - | 20/68 | ● | | | | | | | | | |
| BCHPC-75-W | | powder, water damped | 75 | 3.0 | cartons | 45/113 | 30/86 | 5/41 | 20/68 | ● | | | | | | | | | |
| Dicetyl peroxydicarbonate (CAS no. 26322-14-5) | | | | | | | | | | | | | | | | | | | |
| CEPC | | flakes, technically pure | 96 | 2.7 | cartons | 40/104 | 30/86 | - | 20/68 | ● | | | | | | | | | |
| Dimyristyl peroxydicarbonate (CAS no. 53220-22-7)) | | flakes, technically pure | 97 | 3.0 | cartons | 35/95 | 20/68 | - | 20/68 | ● | | | | | | | | | |
| MYPC | | | | | | | | | | | | | | | | | | | |

● = Recommended application

| PRODUCT CODE | CHEMICAL STRUCTURE | SUPPLY FORM | PEROXIDE CONTENT | ACTIVE OXYGEN | STANDARD PACKAGING | SAFETY INFORMATION | APPLICATION | | | | | | | | | | | |
|---|--------------------|------------------------------|------------------|---------------|--------------------|--------------------|-------------|--------|--------|-------|-------|--------------------------|--------------------------|--------------------------|-----|-------------|--------------|----------------------------|
| | | | | | | | % | % | °C/°F | °C/°F | °C/°F | Tc (Control Temperature) | min. Storage Temperature | max. Storage Temperature | PVC | Polyolefins | Crosslinking | Curing of Thermoset Resins |
| Organic Peroxides | | | | | | | | | | | | | | | | | | |
| tert-Butyl peroxyneodecanoate (CAS no. 26748-41-4) | | | | | | | | | | | | | | | | | | |
| TBPND | | liquid, technically pure | 95 | 6.2 | HDPE canisters | 15/59 | -5/23 | - | -10/14 | ● | ● | ● | ● | ● | | | | |
| TBPND-75-AL | | 75%, solution in isododecane | 75 | 4.9 | HDPE canisters | 15/59 | 0/32 | - | -10/14 | ● | ● | ● | ● | ● | | | | |
| TBPND-75-AL1 (US) | | 75%, solution in OMS | 75 | 4.9 | HDPE canisters | 15/59 | 0/32 | - | -10/14 | ● | ● | ● | ● | | | | | |
| TBPND-50-ENF1 | | 50%, non freezing emulsion | 50 | 3.3 | IBC | 15/59 | 0/32 | - | -10/14 | ● | | | | | | | | |
| TBPND-30-AL | | 30%, solution in isododecane | 30 | 2.0 | IBC | 15/59 | 0/32 | - | -10/14 | ● | ● | | | ● | | | | |
| tert-Amyl peroxypropionate (CAS No. 29240-17-3) | | | | | | | | | | | | | | | | | | |
| TAPPI-75-AL | | 75%, solution in isododecane | 75 | 6.4 | HDPE canisters | 25/77 | 10/50 | - | -5/23 | ● | ● | | | ● | | | | |
| TAPPI-75-AL1 (US) | | 75%, solution in OMS | 75 | 6.4 | HDPE canisters | 25/77 | 10/50 | - | -5/23 | ● | ● | | | | | | | |
| tert-Butyl peroxypropionate (CAS No. 927-07-1) | | | | | | | | | | | | | | | | | | |
| TBPP-75-AL | | 75%, solution in isododecane | 75 | 6.9 | HDPE canisters | 20/68 | 0/32 | -15/5 | -5/23 | ● | ● | | | | | | | |
| TBPP-75-AL1 (US) | | 75%, solution in OMS | 75 | 6.9 | HDPE canisters | 20/68 | 0/32 | -15/5 | -5/23 | ● | ● | | | | | | | |
| TBPP-25-AL | | 25%, solution in isododecane | 25 | 2.3 | IBC | 25/77 | 10/55 | -15/5 | -5/23 | ● | | | | | | | | |
| TBPP-40-AL | | 40%, solution in isododecane | 40 | 3.7 | IBC | 25/77 | 10/55 | -15/5 | -5/23 | ● | | | | | | | | |
| Di(3,5,5-trimethylhexanoyl) peroxide (CAS no. 3851-87-4) | | | | | | | | | | | | | | | | | | |
| INP-75-AL | | 75%, solution in isododecane | 75 | 3.8 | HDPE canisters | 20/68 | 0/32 | -10/14 | 0/32 | ● | ● | | | ● | | | | |
| Dilauroyl peroxide (CAS no. 105-74-8) | | | | | | | | | | | | | | | | | | |
| LP-40-SAQ2 | | 40%, aqueous suspension | 40 | 1.6 | IBC | 50/122 | - | 0/32 | 30/86 | ● | | | | | | | | |
| CUROX®LP-CL2 | | 80% powder, water damped | 80 | 3.2 | cartons | 50/122 | - | 0/32 | 30/86 | ● | | ● | | ● | | | | |
| Di(2,4-dichlorobenzoyl) peroxide (CAS no. 133-14-2) | | | | | | | | | | | | | | | | | | |
| DCLBP-50-PSI | | 50%, paste in silicone oil | 50 | 2.1 | HDPE drum | 60/140 | - | - | 30/86 | ● | | | | | | | | |

● = Recommended application

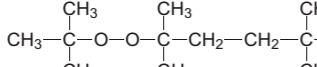
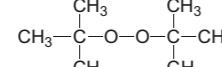
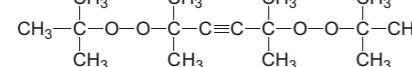
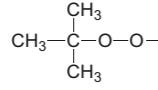
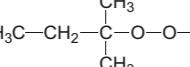
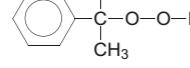
| PRODUCT CODE | CHEMICAL STRUCTURE | SUPPLY FORM | PEROXIDE CONTENT | ACTIVE OXYGEN | STANDARD PACKAGING | SAFETY INFORMATION | APPLICATION | | | |
|---|--------------------|---|------------------|---------------|--------------------|--------------------|-------------|-------|-------|-----------|
| | | | | | | | % | % | °C/°F | |
| Organic Peroxides | | | | | | | | | | |
| Dibenzoyl peroxide (CAS no. 94-36-0) | | | | | | | | | | |
| BENOX®A-75 | | powder, water damped | 75 | 4.95 | cartons | 70/158 | - | 5/41 | 30/86 | ● ● ● |
| BENOX®C-50 | | 50%, powder with phthalate | 50 | 3.3 | cartons, minibags | 60/140 | - | - | 30/86 | ● ● |
| BENOX®C-50S | | 50%, powder with phthalate, chalk | 50 | 3.3 | cartons, minibags | 60/140 | - | - | 30/86 | ● ● |
| BENOX®C-50PF | | 50% BPO powder with phthalatefree, free flowing (chalk) | 50 | 3.3 | cartons, minibags | 60/140 | - | - | 30/86 | ● ● |
| BP-40-SAQ | | 40% aqueous suspension | 40 | 2.7 | IBC | 80/176 | - | 0/32 | 30/86 | ● ● |
| BENOX®L-40LV-EU | | 40 %, sprayable BPO dispersion | 40 | 2.6 | HDPE canisters | 50/120 | 0/25 | 25/77 | | ● |
| <i>tert</i> -Amyl peroxy-2-ethylhexanoate (CAS no. 686-31-7) | | | | | | | | | | |
| TAPEH | | liquid, technically pure | 99 | 6.9 | HDPE canisters | 40/104 | 20/68 | - | 10/50 | ● ● ● ● ● |
| TAPEH-75-AL1 (US) | | 75%, solution in OMS | 75 | 5.2 | HDPE canisters | 40/104 | 20/68 | - | 10/50 | ● ● |
| <i>tert</i> -Butyl peroxy-2-ethylhexanoate (CAS no. 3006-82-4) | | | | | | | | | | |
| TBPEH | | liquid, technically pure | >99 | 7.3 | HDPE canisters | 40/104 | 20/68 | - | 10/50 | ● ● ● ● ● |
| TBPEH-50-AL | | 50%, solution in isododecane | 50 | 3.7 | IBC | 40/104 | 30/86 | - | 10/59 | ● |
| TBPEH-30-AL | | 30%, solution in isododecane | 30 | 2.2 | IBC | 40/104 | 30/86 | - | 10/50 | ● |
| TBPEH-50-AL1 (US) | | 50%, solution in OMS | 50 | 3.7 | HDPE canisters | 40/104 | 30/86 | - | 15/59 | ● |
| TBPEH-LA-M3 | | liquid mixture | 90 | 6.7 | HDPE canisters | 40/104 | 20/68 | - | 15/59 | ● |
| Methyl isobutyl ketone peroxide (CAS no. 37206-20-5) | | | | | | | | | | |
| CUROX®I | | various grades see separate Thermoset brochures | | | | | | | | ● |
| Methyl ethyl ketone peroxide (CAS no. 1338-23-4) | | | | | | | | | | |
| CUROX®M | | various grades see separate Thermoset brochures | | | | | | | | ● |

● = Recommended application

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|--|--------------------|--|------------------|---------------|-----------------------|--------------------|-------------|---|--------|-------|-------|--------------------------|--------------------------|--------------------------|-----|-------------|--------------|----------------------------|-----------|----------|
| | | | | | | | % | % | °C/°F | °C/°F | °C/°F | TC (Control Temperature) | min. Storage Temperature | max. Storage Temperature | PVC | Polyolefins | Crosslinking | Curing of Thermoset Resins | Styrenics | Acrylics |
| Organic Peroxides | | | | | | | | | | | | | | | | | | | | |
| Acetylacetone peroxide (CAS no. 37187-22-7) | | various grades see separate Thermoset brochures | | | | | | | | | | | | | | | | | | |
| CUROX®A | | | | | | | | | | | | | | | | | ● | | | |
| Disuccinoyl peroxide (CAS no. 123-23-9) | | | | | | | | | | | | | | | | | | | | |
| SUCP-70-W | | frozen, water damped | 70 | 4.8 | HDPE boxes or cartons | 30/86 | 10/50 | - | -10/14 | | | | | | | | | ● | | |
| tert-Amyl peroxy-2-ethylhexylcarbonate (CAS no. 70833-40-8) | | | | | | | | | | | | | | | | | | | | |
| TAPEHC | | liquid, technically pure | 95 | 5.8 | HDPE canisters | 55/131 | - | - | 20/68 | | | | | | | ● | ● | ● | | |
| CUROX®SOLAR AC3 | | liquid, technically pure | 97 | 5.9 | HDPE canisters | 55/131 | - | - | 20/68 | | | | | | | ● | | | | |
| 1,1-Di(tert-butyl peroxy)-3, 3, 5- trimethylcyclohexane (CAS no. 6731-36-8) | | | | | | | | | | | | | | | | | | | | |
| TMCH-90-AL (AL3)* | | 90%, solution in isododecane | 90 | 9.4 | HDPE canisters | 70/158 | - | - | 30/86 | | | | | | | ● | ● | ● | ● | ● |
| TMCH-50-AL | | 50%, solution in isododecane | 50 | 5.3 | HDPE canisters | 70/158 | - | - | 30/86 | | | | | | | ● | ● | ● | ● | ● |
| TMCH-90-WO | | 90%, solution in white oil | 90 | 9.4 | HDPE canisters | 70/158 | - | - | 30/86 | | | | | | | ● | ● | ● | ● | |
| TMCH-HA-M1 | | liquid mixture | 75 | 5.8 | HDPE canisters | 55/131 | 20/68 | - | 20/68 | | | | | | | ● | | | | |
| 1,1-Di(tert-butyl peroxy) cyclohexane (CAS no. 3006-86-8) | | | | | | | | | | | | | | | | | | | | |
| CH-80-AL (AL3) * | | 80%, solution in isododecane | 80 | 9.8 | HDPE canisters | 60/140 | - | - | 30/86 | | | | | | | ● | | | | |
| CH-50-WO | | 50%, solution in white oil | 50 | 6.2 | HDPE canisters | 70/158 | - | - | 30/86 | | | | | | | ● | | | | |
| 1,1-Di(tert-amylperoxy)cyclohexane (CAS no. 15667-10-4) | | | | | | | | | | | | | | | | | | | | |
| ACH-80-AL3 | | 80%, solution in Isopar H (B) | 80 | 8.8 | HDPE canisters | 55/131 | - | - | 30/86 | | | | | | | ● | | | | |
| tert-Butyl peroxy-3, 5, 5-trimethylhexanoate (CAS no. 13122-18-4) | | | | | | | | | | | | | | | | | | | | |
| TBPIN | | liquid, technically pure | >99 | 6.9 | HDPE canisters | 60/140 | - | - | 25/77 | | | | | | | ● | ● | ● | ● | ● |
| TBPIN-60-AL | | 60%, solution in isododecane | 60 | 4.2 | IBC | 60/140 | - | - | 25/77 | | | | | | | ● | | | | |
| TBPIN-30-AL | | 30%, solution in isododecane | 30 | 2.1 | IBC | 60/140 | - | - | 25/77 | | | | | | | ● | | | | |
| TBPIN-HA-M1 | | liquid mixture | 90 | 6.2 | HDPE canisters | 60/140 | - | - | 30/86 | | | | | | | ● | | | | |

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|---|--------------------|------------------------------|------------------|---------------|--------------------|--------------------|-------------|-------|--------|-------|-------|--------------------------|--------------------------|--------------------------|-----|-------------|--------------|----------------------------|-----------|
| | | | | | | | % | % | °C/°F | °C/°F | °C/°F | TC (Control Temperature) | min. Storage Temperature | max. Storage Temperature | PVC | Polyolefins | Crosslinking | Curing of Thermoset Resins | Styrenics |
| Organic Peroxides | | | | | | | | | | | | | | | | | | | |
| tert-Butyl peroxy-2-ethylhexylcarbonate (CAS no. 34443-12-4) | | | | | | | | | | | | | | | | | | | |
| TBPEHC | | liquid, technically pure | >97 | 6.3 | HDPE canisters | 60/140 | - | - | 20/68 | ● | ● | ● | ● | | | | | | |
| CUROX®SOLAR FC1 | | liquid, technically pure | >98 | >6.4 | HDPE canisters | 60/140 | - | - | 20/68 | ● | | | | | | | | | |
| tert-Butyl peroxyacetate (CAS no. 107-71-1) | | | | | | | | | | | | | | | | | | | |
| TBPA-50-AL1 (US) | | 50%, solution in OMS | 50 | 6.1 | HDPE canisters | 70/158 | - | - | 40/104 | ● | ● | ● | | | | | | | |
| TBPA-40-AL1 (US) | | 40%, solution in OMS | 40 | 4.8 | IBC | 70/158 | - | - | 40/104 | ● | | | | | | | | | |
| tert-Amyl peroxybenzoate (CAS no. 4511-39-1) | | | | | | | | | | | | | | | | | | | |
| TAPB | | liquid, technically pure | 95 | 7.3 | HDPE canisters | 60/140 | - | 10/50 | 40/104 | ● | ● | | | | | | | | |
| tert-Butyl peroxybenzoate (CAS no. 614-45-9) | | | | | | | | | | | | | | | | | | | |
| TBPB | | liquid, technically pure | >99 | 8.2 | HDPE canisters | 60/140 | - | 10/50 | 30/86 | ● | ● | ● | ● | ● | | | | | |
| TBPB-HA-M1 | | liquid mixture | 90 | 7.4 | HDPE canisters | 60/140 | - | 10/50 | 30/86 | ● | | | | | | | | | |
| TBPB-HA-M3 | | liquid mixture | 80 | 6.5 | HDPE canisters | 55/131 | - | 10/50 | 30/86 | ● | | | | | | | | | |
| 2,2-Di(tert-butyl peroxy)butane (CAS no. 2167-23-9) | | | | | | | | | | | | | | | | | | | |
| BU-50-AL | | 50%, solution in isododecane | 50 | 6.8 | HDPE canisters | 70/158 | - | -15/5 | 30/86 | ● | ● | ● | ● | | | | | | |
| BU-50-WO | | 50%, solution in white oil | 50 | 6.8 | HDPE canisters | 70/158 | - | -15/5 | 30/86 | ● | ● | ● | ● | | | | | | |
| BU-35-AL | | 35%, solution in isododecane | 35 | 4.8 | IBC | 70/158 | - | -15/5 | 30/86 | ● | ● | | | | | | | | |
| Dicumylperoxide (CAS no. 80-43-3) | | | | | | | | | | | | | | | | | | | |
| DCUP | | powder, technically pure | >99 | 5.9 | cartons | >70/158 | - | - | 30/86 | ● | ● | ● | ● | ● | | | | | |
| 1,3-/1,4-Di(2-tert-butylperoxyisopropyl)benzene (CAS no. 25155-25-3) | | | | | | | | | | | | | | | | | | | |
| DIPP | | flakes, technically pure | 97 | 9.2 | cartons | 90/194 | - | - | 30/86 | ● | | | | | | | | | |

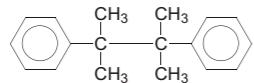
● = Recommended application

| PRODUCT CODE | CHEMICAL STRUCTURE | SUPPLY FORM | PEROXIDE CONTENT | ACTIVE OXYGEN | STANDARD PACKAGING | SAFETY INFORMATION | APPLICATION | | | | | | | | | | |
|--|---|--------------------------------------|------------------|---------------|---|--------------------|-------------|--------------------------|--------------------------|--------------------------|-----|-------------|--------------|----------------------------|-----------|----------|-------------------------|
| | | | | | | | SADT | Tc (Control Temperature) | min. Storage Temperature | max. Storage Temperature | PVC | Polyolefins | Crosslinking | Curing of Thermoset Resins | Styrenics | Acrylics | Emulsion Polymerisation |
| Organic Peroxides | | | % | % | | | | | | | | | | | | | |
| 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane (CAS no. 78-63-7) | | | | | | | | | | | | | | | | | |
| DHBP | | liquid, technically pure | 95 | 10.4 | HDPE canisters | 90/194 | - | 10/50 | 40/104 | | ● | ● | | | | | |
| DHBP-7.5-IC5 | | 7.5%, granules with PP | 7,5 | 0.8 | cartons | 90/194 | - | - | 40/104 | | ● | | | | | | |
| DHBP-20-IC5 | | 20%, granules with PP | 20 | 2.2 | cartons | 90/194 | - | - | 40/104 | | ● | | | | | | |
| DHBP-45-IC2 |  | 45%, powder with chalk and silica | 45 | 5.1 | cartons | 90/194 | - | - | 40/104 | | ● | | | | | | |
| DHBP-45-PSI1 | | 45%, paste in silicone | 45 | 5.0 | HDPE drum | 90/194 | - | - | 30/86 | | ● | | | | | | |
| CUROX®SOLAR SC | | liquid, technically pure | 95 | 10.4 | HDPE canisters | 90/194 | - | 10/50 | 40/104 | | ● | | | | | | |
| Di-tert-butyl peroxide (CAS no. 110-05-4) | | | | | | | | | | | | | | | | | |
| DTBP | | liquid, technically pure | >99 | 10.8 | 160 kg steel drum | >80/176 | - | - | 40/104 | | ● | ● | | ● | ● | | |
| DTBP S-500 | | liquid, technically pure, conductive | >99 | 10.8 | 160 kg steel drum | >80/176 | - | - | 40/104 | | ● | ● | | ● | ● | | |
| DTBP-75-AL |  | 75%, solution in isododecane | 75 | 8.2 | IBC | >80/176 | - | - | 30/86 | | ● | | | ● | | | |
| DTBP-50-AL | | 50%, solution in isododecane | 50 | 5.5 | IBC | >80/176 | - | - | 30/86 | | ● | | | ● | | | |
| DTBP-50-AL4 (US) | | solution in aliphatics | 50 | 5.5 | IBC | >80/176 | - | - | 30/86 | | ● | | | | | | |
| 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3 (CAS no. 1068-27-5) | | | | | | | | | | | | | | | | | |
| DYBP (US) | | liquid, technically pure | 94 | 10.5 | HDPE canisters | 90/194 | - | 10/50 | 40/104 | | ● | | | | | | |
| DYBP-85-WO |  | 82%, solution in white oil | 82 | 9.2 | HDPE canisters | 90/194 | - | 10/50 | 40/104 | | ● | | | | | | |
| DYBP-45-IC2 (US) | | 45%, powder with chalk and silica | 45 | 5.0 | cartons | 90/194 | - | 10/50 | 40/104 | | ● | | | | | | |
| tert-Butyl hydroperoxide (CAS no. 75-91-2) | | | | | | | | | | | | | | | | | |
| TBHP-70-AQ |  | 70%, aqueous solution | 70 | 12.5 | HDPE canisters 190 kg HDPE drum IBC | >80/176 | - | 2/35 | 35/95 | | ● | ● | ● | | | | |
| tert-Amyl hydroperoxide (CAS no. 3425-61-4) | | | | | | | | | | | | | | | | | |
| TAHP-88 |  | 88%, aqueous solution | 88 | 13.5 | 190 kg HDPE drum | >80/176 | - | 2/35 | 35/95 | | ● | ● | ● | | | | |
| Cumyl hydroperoxide (CAS no. 80-15-9) | | | | | | | | | | | | | | | | | |
| CUROX®CUHP |  | 80-85%, liquid mixture | 80-85 | 8.5 | HDPE canisters | 60/140 | - | - | 30/86 | | ● | ● | ● | | | | |

● = Recommended application

| PRODUCT CODE | CHEMICAL STRUCTURE | SUPPLY FORM | PEROXIDE CONTENT | ACTIVE OXYGEN | STANDARD PACKAGING | SAFETY INFORMATION | APPLICATION | | |
|--|--------------------|-------------|------------------|---------------|--------------------|--------------------|-------------|---|-------|
| | | | | | | | % | % | °C/°F |
| Organic Peroxides | | | | | | | | | |
| 2,3-Dimethyl-2,3-diphenylbutane (CAS no. 1889-67-4) | | | | | | | | | |

CUROX®CC-DC



flakes, technically pure

-

-

cartons, Big Bag /
super sacks

-

-

-

-

CUROX®CC-DCF

liquid, technically pure

-

-

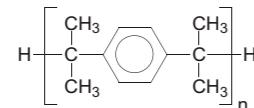
IBC

-

-

-

-

Poly-1,4-diisopropylbenzene
(CAS no. 25822-43-9)

flakes, technically pure

-

-

cartons

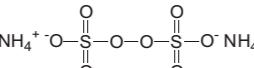
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-

-

-

CUROX®CC-P3

PersulfatesAmmonium peroxodisulfate
(CAS no. 7727-54-0)

powder, technically pure

>99

7.0

25 kg bags

>130/266

-

-

30/86

● ● ● ●

APS

APS-3

Potassium peroxodisulfate
(CAS no. 7727-21-1)

free flowing grade

>99

7.0

1.000 kg super sacks

>130/266

-

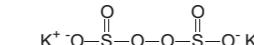
-

30/86

● ● ● ●

KPS/PPS

KPS-5

Sodium peroxodisulfate
(CAS no. 7775-27-1)

powder, technically pure

>99

5.9

25 kg bags

>170/338

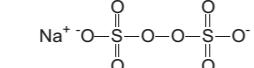
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-

30/86

● ● ● ●

NPS/SPS



powder, technically pure

>99

6.7

25 kg bags

>170/338

-

-

30/8

● ● ● ●

1.000 kg super sacks

>170/338

-

-

30/86

Safety Information

Half-life

Peroxide decomposition rates are commonly reported in terms of half-life time or when 50% of the peroxide has decomposed at a certain temperature. Recommended organic peroxide heat temperatures commonly reflect the half-life time at 10 hours, 1 hour and 1 minute. The higher the half-life temperature, the more stable the peroxide. Half-life temperatures can vary based on formulations and solvents.

Using the Arrhenius equation, acronyms related to halflife time include:

$$k_d = A \cdot e^{-EA/RT} \text{ and } t_{1/2} = \ln 2/k_d$$

k_d : Rate constant of the peroxide dissociation

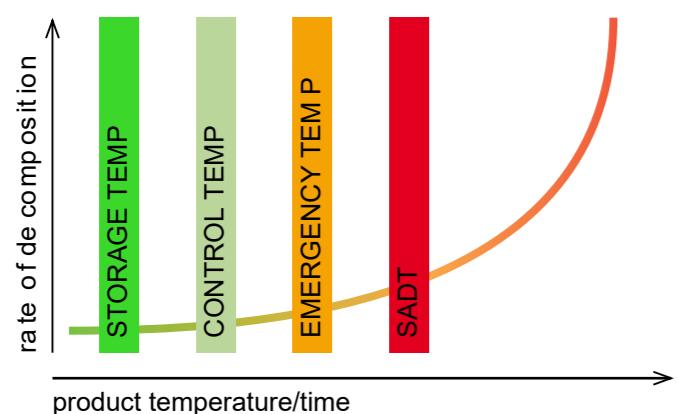
A: Arrhenius frequency factor

EA: Activation energy for the dissociation

R: Ideal gas constant

T: Temperature

$t_{1/2}$: Half-life time



Controlling the temperature is the most important constant. If the temperature is maintained well below its self-accelerating decomposition temperature (SADT), most hazards are avoided when shipping, handling or storing. For storage over a longer period of time, follow the manufacturer's temperature recommendations.

Self-Accelerating Decomposition

Temperature (SADT)

The SADT is the lowest constant temperature for self-accelerating decomposition when transporting packaged peroxides. At the SADT, when elevated heat temperatures from decomposition exceed the heat loss, over time, the peroxide's temperature increases and it decomposes faster or self-accelerates. The final decomposition may be uncontrollable.

Minimum/Maximum Recommended Storage Temperature

The maximum recommended storage temperature is lower than the control temperature for quality assurance purposes not safety. Keep in mind, some liquid or paste organic peroxides must not be stored below a certain minimum temperature as turbidity, phase separation, crystal deposits or solidification can occur.

Control Temperature (Tc)

The Tc is the maximum transportation temperature recommended for the product's estimated time of arrival. Tc is not required if the SADT exceeds 50°C (122°F). Generally, the Tc mirrors SADT canister guidelines.

$$T_c = SADT \text{ minus } 20^\circ\text{C if } SADT < 20^\circ\text{C}$$

$$T_c = SADT \text{ minus } 15^\circ\text{C if } SADT < 35^\circ\text{C}$$

$$T_c = SADT \text{ minus } 10^\circ\text{C if } SADT < 50^\circ\text{C}$$

SADT transportation temperatures are based on recommendations by the UN Committee of Experts on the Transportation of Dangerous Goods.

Emergency Temperature (Te)

The control temperature Tc is supplemented by an emergency temperature, Te, which is higher than the Tc but still well below the SADT. The Tc may be exceeded if maintenance is necessary or until alternative cooling such as dry or wet ice is available. However, if the Te is reached, emergency procedures must be implemented immediately – for instance, cooling down the organic peroxides.

| Product Code | Chemical Name | Storage Temperature | EA [kJ/mol] | Half Life [°C] | | |
|--------------|--|---------------------|-------------|----------------|-----|-------|
| | | | | 10 h | 1 h | 1 min |
| IBP | Diisobutyl peroxide | ● | 110 | 23 | 39 | 73 |
| CUPND | Cumyl peroxyneodecanoate | ● | 115 | 38 | 55 | 90 |
| TOPND | 1,1,3,3-Tetramethylbutyl peroxyneodecanoate | ● | 117 | 40 | 57 | 92 |
| TAPND | tert-Amyl peroxyneodecanoate | ● | 113 | 44 | 62 | 100 |
| CEPC | Dicetyl peroxydicarbonate | ● | 124 | 41 | 57 | 90 |
| MYPC | Dimyristyl peroxydicarbonate | ● | 124 | 41 | 57 | 90 |
| SBPC | Di-sec-butyl peroxydicarbonate | ● | 120 | 41 | 57 | 90 |
| EHPC | Di-2-ethylhexyl peroxydicarbonate | ● | 121 | 47 | 64 | 83 |
| TBPND | tert-Butyl peroxyneodecanoate | ● | 121 | 47 | 64 | 100 |
| BCHPC | Di-4-tert-butylcyclohexyl peroxydicarbonate | ● | 129 | 48 | 64 | 82 |
| NBPC | Di-n-butyl peroxydicarbonate | ● | 130 | 49 | 65 | 99 |
| TBNH | tert-Butyl peroxyneohexanoate | ● | 116 | 51 | 69 | 107 |
| TAPPI | tert-Amyl peroxypropionate | ● | 121 | 53 | 71 | 110 |
| DCLBP | Di-2,4-dichlorobenzoyl peroxide | ● | 121 | 54 | 72 | 110 |
| TBPP1 | tert-Butyl peroxypropionate | ● | 121 | 56 | 74 | 110 |
| INP | Di-3,5,5-trimethylhexanoyl peroxide | ● | 117 | 59 | 78 | 120 |
| DP | Didecanoyl peroxide | ● | 126 | 62 | 80 | 120 |
| LP | Dilauroyl peroxide | ● | 126 | 62 | 80 | 120 |
| AIBN | 2,2'-Azobis(isobutyronitrile) | ● | 130 | 62 | 80 | 120 |
| DHPEH | 2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy) hexane | ● | 137 | 67 | 84 | 125 |
| PMBP | Di-4-methylbenzoyl peroxide | ● | 125 | 70 | 89 | 130 |
| BP | Dibenzoyl peroxide | ● | 126 | 72 | 91 | 130 |
| TAPEH | tert-Amyl peroxy-2-ethylhexanoate | ● | 126 | 72 | 91 | 130 |
| TBPEH | tert-Butyl peroxy-2-ethylhexanoate | ● | 135 | 74 | 92 | 130 |
| TBPIB | tert-Butyl peroxyisobutyrate | ● | 130 | 77 | 96 | 135 |
| TBPM | tert-Butyl monoperoxy maleate | ● | 116 | 82 | 104 | 150 |
| ACH | 1,1-Di(tert-amylperoxy)cyclohexane | ● | 135 | 87 | 106 | 152 |
| MIKP | Methyl isobutyl ketone peroxide | ● | 125 | 90 | 110 | 155 |
| TAPEHC | tert-Amylperoxy-(2-ethylhexyl)carbonate | ● | 151 | 95 | 113 | 150 |
| TMCH | 1,1-Di(tert-butylperoxy)-3,5,5-trimethyl-cyclohexane | ● | 143 | 95 | 114 | 155 |
| CH | 1,1-Di(tert-butylperoxy)cyclohexane | ● | 138 | 97 | 117 | 160 |
| TBPIC | tert-Butyl peroxyisopropyl carbonate | ● | 138 | 97 | 117 | 160 |
| TBPIN | tert-Butyl peroxy-3,5,5-trimethylhexanoate | ● | 147 | 100 | 119 | 160 |
| TBPEHC | tert-Butyl peroxy-2-ethylhexyl carbonate | ● | 128 | 100 | 122 | 175 |
| TBPA | tert-Butyl peroxyacetate | ● | 149 | 102 | 121 | 160 |
| TAPB | tert-Amyl peroxybenzoate | ● | 143 | 102 | 122 | 160 |
| TBPB | tert-Butyl peroxybenzoate | ● | 143 | 104 | 124 | 165 |
| BU | 2,2-Di(tert-butylperoxy)butane | ● | 143 | 104 | 124 | 165 |
| NBV | n-Butyl-4,4-di(tert-butylperoxy)valerate | ● | 141 | 110 | 131 | 175 |
| EBU | Ethyl-3,3-di(tert-butylperoxy)butyrate | ● | 144 | 114 | 135 | 180 |
| DCUP | Dicumyl peroxide | ● | 152 | 116 | 136 | 175 |
| BCUP | tert-Butyl cumyl peroxide | ● | 154 | 118 | 138 | 180 |
| DTAP | Di(tert-amyl) peroxide | ● | 129 | 118 | 142 | 190 |
| DIPP | Di[2-(tert-butylperoxy)-isopropyl]benzene | ● | 142 | 120 | 142 | 190 |
| DHBP | 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane | ● | 142 | 120 | 142 | 190 |
| DTBP | Di(tert-butyl) peroxide | ● | 152 | 125 | 146 | 190 |
| DYBP | 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexyne-3 | ● | 154 | 128 | 149 | 195 |
| CUHP | Cumyl hydroperoxide | ● | 133 | 140 | 166 | 223 |
| TBHP | tert-Butyl hydroperoxide | ● | 149 | 173 | 200 | 260 |
| CUROX®CC-DC | 2,3-Dimethyl-2,3-diphenylbutane | ● | 195 | 210 | 234 | 285 |

Colour code for storage temperature:

● = Deep refrigeration ● = Moderate refrigeration ● = Ambient temperature

UNITED INITIATORS – POLYMER MANUFACTURING AND PROCESSING 19

For precise values see specific product data sheets



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