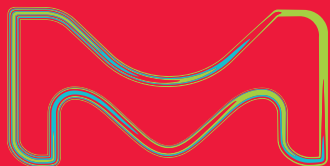


**Sigma-Aldrich®**

Lab Materials & Supplies

# Specialty Materials

For Dental Applications



The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

**MILLIPORE  
SIGMA**

# Organic and Polymer Materials

## For Dental Applications

Dental applications require high-quality materials that are biocompatible, wear-resistant and durable. Restorative dental materials must withstand the adverse conditions of the oral environment for optimal performance. The selection of monomers, initiators, crosslinkers, ionomers and additives impacts longevity, mechanical characteristics and ultimately the performance of the end product. The quality of dental materials is highly dependent on the monomers and starting materials used in their polymerization and formulation.

We offer a selection of high-purity monomers and starting materials for a wide range of dental applications. Our dedication and innovation assist your development pipeline to meet clinical and technological expectations. We customize our services around your needs.



| Material Name   | Description                | CAS No.     |
|---|----------------------------|-------------|
| <b>Monomers</b>   |                            |             |
| 2-Hydroxyethyl methacrylate (HEMA)  | Monomer                    | 868-77-9    |
| Diurethane dimethacrylate (udma) (bis (2-methacryloxyethyl) <i>N, N'</i> -1, 9-nonylene biscarbamate) | Monomer                    | 72869-86-4  |
| Triethylene glycol dimethacrylate (TEGDMA)  | Monomer                    | 109-16-0    |
| 2-(Dimethylamino) ethyl methacrylate  | Monomer                    | 2867-47-2   |
| Isobornyl methacrylate  | Monomer                    | 7534-94-3   |
| Methyl methacrylate   | Monomer; adhesive promoter | 80-62-6     |
| 3-(Trimethoxysilyl) propyl methacrylate   | Monomer; adhesive promoter | 2530-85-0   |
| (Trimethylsilyl) methacrylate   | Monomer; adhesive promoter | 13688-56-7  |
| 3-(Tris (trimethylsiloxy) silyl) propyl methacrylate  | Monomer; adhesive promoter | 17096-07-0  |
| 2-(Trimethylsilyloxy) ethyl methacrylate  | Monomer; adhesive promoter | 17407-09-9  |
| Bis (2-(methacryloyloxy) ethyl) phosphate   | Monomer; self etch         | 32435-46-4  |
| Ethylene glycol methacrylate phosphate  | Monomer; self etch         | 24599-21-1  |
| <b>Crosslinkers and Resins</b>  |                            |             |
| Ethylene glycol dimethacrylate (EGDM)   | Crosslinker                | 97-90-5     |
| Biphenyl dimethacrylate (BPDM)  | Crosslinker                | 125086-31-9 |
| Bisphenol A dimethacrylate (BisDMA)   | Crosslinker                | 3253-39-2   |
| 1, 6-Hexanediol dimethacrylate (HDMA)   | Crosslinker                | 6606-59-3   |
| Tetraethylene glycol dimethacrylate   | Crosslinker                | 109-17-1    |
| Bisphenol A glycerolate dimethacrylate  | Crosslinker; resin         | 1565-94-2   |
| Bisphenol A glycerolate diacrylate  | Crosslinker; resin         | 4687-94-9   |
| Glycerol 1, 3-dimethacrylate (GDMA)   | Crosslinker; resin         | 1830-78-0   |
| Polyethylene glycol diacrylates   | Crosslinker; resin         | 26570-48-9  |
| Dipentaerythritol penta-hexa-acrylate   | Crosslinker; resin         | 60506-81-2  |
| Ethoxylated bisphenol methacrylate (EBPADMA)  | Crosslinker; resin         | 41637-38-1  |
| Bisphenol A ethoxylate diacrylate   | Crosslinker; resin         | 64401-02-1  |
| Trimethylolpropane trimethacrylate (TMPTMA)   | Crosslinker; resin         | 3290-92-4   |

| Material Name   | Description                | CAS No.    |
|---|----------------------------|------------|
| <b>Ionomers</b>   |                            |            |
| Polyacrylic acid  | Ionomer                    | 9003-01-4  |
| <b>Impression Materials, Initiators, and Inhibitors</b>                     |                            |            |
| Poly(dimethylsiloxane)  | Impression material        | 9016-00-6  |
| Vinyl-polydimethylsiloxane  | Impression material        | 68083-19-2 |
| Poly (dimethylsiloxane-co-methylhydrosiloxane) trimethylsilyl terminated    | Impression material        | 68037-59-2 |
| Diphenyliodonium hexafluorophosphate  | Photo initiator            | 58109-40-3 |
| Diphenyliodonium chloride   | Photo initiator            | 1483-72-3  |
| DL-camphorquinone   | Photo initiator            | 10373-78-1 |
| Diphenyl (2, 4, 6-trimethylbenzoyl) phosphine oxide                         | Photo initiator            | 75980-60-8 |
| Benzoyl peroxide  | Thermal initiator          | 94-36-0    |
| 2, 2'-(4-Methylphenylimino) diethanol                                       | Co-initiator               | 3077-12-1  |
| <i>N, N</i> -Dimethyl- <i>m</i> -toluidine                                  | Co-initiator               | 121-72-2   |
| 2-(4-(Dimethylamino) phenyl) ethanol  | Co-initiator               | 50438-75-0 |
| 4-(Dimethylamino) phenylacetic acid   | Co-initiator               | 17078-28-3 |
| 4-Methoxyphenol   | Inhibitor                  | 150-76-5   |
| 2, 6-Di- <i>tert</i> -butyl-4-methylphenol                                  | Inhibitor                  | 128-37-0   |
| Platinum (0)-1, 3-divinyl-1, 1, 3, 3-tetramethyldisiloxane complex solution | Catalyst; hydrosilylation  | 68478-92-2 |
| Triphenylphosphine  | Photo initiator; precursor | 603-35-0   |
| <b>Monomer Precursors</b>   |                            |            |
| Methacrylic anhydride   | Precursor                  | 760-93-0   |
| Methacryloyl chloride   | Precursor                  | 920-46-7   |
| Acrylic acid  | Precursor                  | 79-10-7    |
| Methacrylic acid  | Precursor                  | 79-41-4    |

# Inorganic Materials

## For Dental Applications

The biocompatibility and chemical inertness of several inorganic materials make them useful for dental applications ranging from crowns, caps and cements to additives, elastomers and restorative materials. Variations in the inorganic constituents allow tunability of optical and mechanical properties, rendering them viable materials for dentistry.

We offer a large selection of well-characterized salts, ceramics, oxides and nanopowders that have a wide range of dental applications. We are also able to provide custom formulations according to your specific needs.

### Oxides and Ceramics

| Material Name                                    | Description                               | Cat. No.      |
|--|---|---------------|
| Lanthanum oxide                                  | Precursor for restorative materials       | <b>L4000</b>  |
| Aluminum oxide, 99.998% trace metal basis        | Precursor for restorative materials       | <b>202606</b> |
| Bismuth(III) oxide, ≥ 98.0%                      | Dental cement material                    | <b>95381</b>  |
| Cobalt(II, III) oxide, 99.995% trace metal basis | Pigment additive to restorative materials | <b>203114</b> |
| Zinc oxide, 99.99% trace metal basis             | Dental cement material                    | <b>255750</b> |
| Tungsten(VI) oxide, ≥ 99% trace metal basis      | Precursor for restorative materials       | <b>232785</b> |
| Zirconium(IV) oxide, 99% trace metal basis       | Precursor for restorative materials       | <b>230693</b> |
| Boron nitride, 98%                               | Dental cement material                    | <b>255475</b> |
| Potassium hexafluorotitanate                     | Additive for filling material             | <b>308382</b> |
| Barium zirconate                                 | Filling material                          | <b>383309</b> |

For complete list of oxides, visit [SigmaAldrich.com/oxides](https://www.sigmaaldrich.com/oxides)

For complete list of ceramics, visit [SigmaAldrich.com/elementalceramics](https://www.sigmaaldrich.com/elementalceramics)

### Metal Salts

| Material Name  | Description                              | Cat. No.      |
|--|--|---------------|
| Hydroxyapatite, powder   | Material for dental cements              | <b>289396</b> |
| Strontium carbonate, ≥ 98%                                     | Material for dental cements              | <b>289833</b> |
| Aluminum metaphosphate   | Dental cement material                   | <b>344915</b> |
| Lithium phosphate  | Filling material                         | <b>338893</b> |
| Sodium hexafluorosilicate                                      | Additive to dental cement                | <b>250171</b> |
| Terbium(III) nitrate pentahydrate, 99.9% trace metal basis     | Additive to dental restorative materials | <b>325945</b> |
| Zinc hexafluorosilicate hydrate, 99%                           | Additive to dental cement                | <b>401498</b> |
| Potassium hexafluoroantimonate, 99%                            | Additive to dental cement                | <b>238007</b> |
| Erbium(III) nitrate pentahydrate, 99.9% trace metal basis      | Additive to dental restorative materials | <b>298166</b> |
| Praseodymium(III) nitrate hexahydrate, 99.9% trace metal basis | Additive to dental restorative materials | <b>205133</b> |

For complete list of salts, visit [SigmaAldrich.com/metalsalts](https://www.sigmaaldrich.com/metalsalts)

### Nanopowders

| Material Name  | Description                         | Cat. No.      |
|--|-------------------------------------|---------------|
| Hydroxyapatite, < 200 nm, ≥ 97%                                      | Material for dental cements         | <b>677418</b> |
| Iron(III) oxide nanopowder, < 50 nm                                  | Filling material                    | <b>544884</b> |
| Lanthanum(III) oxide, nanopowder, < 100 nm, 99% trace metal basis    | Precursor for restorative materials | <b>634271</b> |
| Zinc oxide, nanopowder, < 100 nm                                     | Dental cement material              | <b>544906</b> |
| Calcium phosphate, amorphous, < 150 nm                               | Dental cement material              | <b>693871</b> |
| Europium(III) oxide, nanopowder, < 150 nm, 99.5% trace metal basis   | Filling material                    | <b>634298</b> |
| Bismuth(III) oxide, nanopowder, 90 – 210 nm, 99.8% trace metal basis | Dental cement material              | <b>637017</b> |

For complete list of nanomaterials, visit [SigmaAldrich.com/nanopowders](https://www.sigmaaldrich.com/nanopowders)

## Additional Products for Dental Applications

| Material Name                   | Available Grades  | CAS No.     |
|---------------------------------|---|-------------|
| <b>Dental Adhesives/Bonding</b> |   |             |
| Sodium Carboxymethylcellulose   | Meets USP testing specifications                                | 9004-32-4   |
| Sodium Tetraphenylborate        |   | 143-66-8    |
| <b>Dental Cements</b>           |   |             |
| Aluminum Phosphate              |   | 7784-30-7   |
| Calcium Chloride Dihydrate      | Meets analytical specification of Ph. Eur., USP, FCC, E509      | 10035-04-8  |
| Calcium Fluoride                |   | 7789-75-5   |
| Calcium Hydroxide               |   | 1305-62-0   |
| Calcium Oxide                   | Meets analytical specification of FCC                           | 1305-78-8   |
| Magnesium Oxide                 | Meets analytical specification of Ph. Eur., BP, USP, FCC, E 530 | 1309-48-4   |
| Maleic Acid                     |   | 110-16-7    |
| Phosphorus Pentoxide            |   | 1314-56-3   |
| Silica Gel                      |   | 112926-00-8 |
| Zinc Acetate Dihydrate          |   | 5970-45-6   |
| Zinc Oxide                      | Meets analytical specification of Ph. Eur., BP, USP             | 1314-13-2   |
| <b>Dental Composites</b>        |   |             |
| Dimethylglyoxime                |   | 95-45-4     |

| Material Name   | Available Grades  | CAS No.    |
|---|---|------------|
| <b>Dental Ceramics/Implants</b>                         |   |            |
| Boron Trioxide/Boric Anhydride                          |   | 1303-86-2  |
| Iron(III) Nitrate Nonahydrate                           |   | 7782-61-8  |
| Titanium Dioxide  |   | 13463-67-7 |
| <b>Dental Impressions</b>                               |   |            |
| Agar  |   | 9002-18-0  |
| Calcium Sulfate Dihydrate                               |   | 10101-41-4 |
| Drierite  |   | 7778-18-9  |
| Glycolic Acid   |   | 79-14-1    |
| Magnesium Carbonate                                     |   | 23389-33-5 |
| Potassium Sulfate                                       | PharmaGrade, EP, Manufactured under appropriate GMP controls for pharma or biopharmaceutical production | 7778-80-5  |
| <b>Endodontics</b>                                      |   |            |
| Ethylenediaminetetraacetic Acid                         |   | 60-00-4    |
| Ethylenediaminetetraacetic Acid Disodium Salt Dehydrate | Meets analytical specification of Ph. Eur., BP, USP, FCC  | 6381-92-6  |
| Sodium Hypochlorite Solution                            |   | 7681-52-9  |

## Etchants, Solvents and Other Essential Products

| Material Name               | Available Grades  | CAS No.   |
|-----------------------------|---|-----------|
| <b>Dental Etchants</b>      |   |           |
| Glutaraldehyde              |   | 111-30-8  |
| Hydrochloric Acid           |   | 7647-01-0 |
| Nitric Acid                 |   | 7697-37-2 |
| Phosphoric Acid             | Meets analytical specification of Ph. Eur., BP, NF, FCC   | 7664-38-2 |
| Sulfuric Acid               |   | 7664-93-9 |
| <b>Dental Solvents</b>      |   |           |
| (±)-1,3-Butanediol          |   | 107-88-0  |
| 2-Butanone                  | FCC, Food Grade   | 78-93-3   |
| Acetone                     | Meets analytical specification of Ph. Eur., BP, NF; FCC   | 67-64-1   |
| Chloroform                  |   | 67-66-3   |
| Dichloromethane             | Meets analytical specification of Ph. Eur., NF  | 75-09-2   |
| Dimethyl Sulfoxide          | Meets EP testing specifications, meets USP testing specifications; meets EP, USP testing specifications; Food Grade | 67-68-5   |
| Ethanol                     | Meets USP testing specifications  | 64-17-5   |
| Ethyl Acetate               | Meets analytical specification of Ph. Eur., BP, NF; FCC   | 141-78-6  |
| Ethylene Glycol             |   | 107-21-1  |
| Heptane                     |   | 142-82-5  |
| Hexane                      |   | 110-54-3  |
| Isopropyl Alcohol           | FCC, Food Grade; meets USP testing specifications   | 67-63-0   |
| Methanol                    |   | 67-56-1   |
| Specially Denatured Alcohol |   | 64-17-5   |
| <i>tert</i> -Butanol        |   | 75-65-0   |
| Tetrahydrofuran             |   | 109-99-9  |
| Toluene                     |   | 108-88-3  |

| Material Name                          | Available Grades  | CAS No.    |
|--|---|------------|
| <b>Miscellaneous (Multiple Uses)</b>   |   |            |
| Acetic Acid                            | Meets analytical specification of Ph. Eur., BP, USP, FCC; FCC, FG; PharmaGrade, USP, JP, Ph Eur, Manufactured under appropriate GMP controls for pharma or biopharmaceutical production | 64-19-7    |
| Agarose                                |   | 9012-36-6  |
| Benzoyl Peroxide                       |   | 94-36-0    |
| Calcium Hydroxide                      |   | 1305-62-0  |
| Glycerin                               | Meets USP testing specifications; meets analytical specification of Ph. Eur., BP, USP, FCC, E422; FCC, FG, Kosher   | 56-81-5    |
| Hydrogen Peroxide                      | Meets USP testing specifications  | 7722-84-1  |
| Magnesium Sulfate Heptahydrate         | PharmaGrade, USP, Manufactured under appropriate GMP controls for pharma or biopharmaceutical production; meets analytical specification of Ph. Eur., BP, USP, FCC                      | 10034-99-8 |
| Phosphate Buffered Saline              |   | —          |
| Poly(ethylene glycol)                  |   | 25322-68-3 |
| Potassium Tartrate Dibasic Hemihydrate |   | 6100-19-2  |
| Silicon Dioxide                        |   | 7631-86-9  |
| Sodium Acetate Trihydrate              | Meets USP testing specifications; meets analytical specification of Ph. Eur., BP, USP, FCC, E262  | 6131-90-4  |
| Sodium Deoxycholate                    | PharmaGrade, Manufactured under appropriate controls for use as a raw material in pharma or biopharmaceutical production  | 302-95-4   |
| Sodium Sulfate                         | Meets analytical specification of Ph. Eur., BP, USP   | 7757-82-6  |
| Trizma® Base                           | Meets EP, USP testing specifications  | 77-86-1    |
| Water                                  |   | 7732-18-5  |

For more information or technical support, contact our Product Management team at [matsci@sial.com](mailto:matsci@sial.com)

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