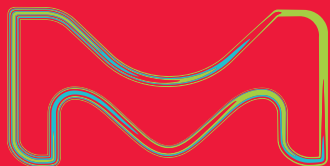


Sigma-Aldrich®

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.
Monomers		
2-Hydroxyethyl methacrylate (HEMA)	Monomer	868-77-9
Diurethane dimethacrylate (udma) (bis (2-methacryloxyethyl) <i>N, N'</i> -1, 9-nonylene bis carbamate)	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
Crosslinkers and Resins		
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.
Ionomers		
Polyacrylic acid	Ionomer	9003-01-4
Impression Materials, Initiators, and Inhibitors		
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-tetramethylidisiloxane complex solution	Catalyst; hydrosilylation	68478-92-2
Triphenylphosphine	Photo initiator; precursor	603-35-0
Monomer Precursors		
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	L4000
Aluminum oxide, 99.998% trace metal basis	Precursor for restorative materials	202606
Bismuth(III) oxide, $\geq 98.0\%$	Dental cement material	95381
Cobalt(II, III) oxide, 99.995% trace metal basis	Pigment additive to restorative materials	203114
Zinc oxide, 99.99% trace metal basis	Dental cement material	255750
Tungsten(VI) oxide, $\geq 99\%$ trace metal basis	Precursor for restorative materials	232785
Zirconium(IV) oxide, 99% trace metal basis	Precursor for restorative materials	230693
Boron nitride, 98%	Dental cement material	255475
Potassium hexafluorotitanate	Additive for filling material	308382
Barium zirconate	Filling material	383309

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	289396
Strontium carbonate, $\geq 98\%$	Material for dental cements	289833
Aluminum metaphosphate	Dental cement material	344915
Lithium phosphate	Filling material	338893
Sodium hexafluorosilicate	Additive to dental cement	250171
Terbium(III) nitrate pentahydrate, 99.9% trace metal basis	Additive to dental restorative materials	325945
Zinc hexafluorosilicate hydrate, 99%	Additive to dental cement	401498
Potassium hexafluoroantimonate, 99%	Additive to dental cement	238007
Erbium(III) nitrate pentahydrate, 99.9% trace metal basis	Additive to dental restorative materials	298166
Praseodymium(III) nitrate hexahydrate, 99.9% trace metal basis	Additive to dental restorative materials	205133

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

Nanopowders

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

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.
Dental Adhesives/Bonding		
Sodium Carboxymethylcellulose	Meets USP testing specifications	9004-32-4
Sodium Tetraphenylborate		143-66-8
Dental Cements		
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
Dental Composites		
Dimethylglyoxime		95-45-4

Material Name	Available Grades	CAS No.
Dental Ceramics/Implants		
Boron Trioxide/Boric Anhydride		1303-86-2
Iron(III) Nitrate Nonahydrate		7782-61-8
Titanium Dioxide		13463-67-7
Dental Impressions		
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
Endodontics		
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

For more information or technical support, contact our Product Management team at matsci@sial.com

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 Development/Custom Manufacturing Inquiries: safcglobal@sial.com
 Safety-related Information: SigmaAldrich.com/safetycenter

Etchants, Solvents and Other Essential Products

Material Name	Available Grades	CAS No.
Dental Etchants		
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
Dental Solvents		
(±)-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.
Miscellaneous (Multiple Uses)		
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

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technical assistance**

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