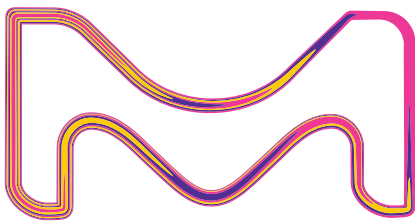


Simplify your semi-solid formulations.

High-quality pharma raw materials backed
with global regulatory support.



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

SAFC®

Pharma & Biopharma Raw
Material Solutions

A broad product portfolio and global support.

Finding the right excipient that matches your needs as well as regulatory demands can be a complicated challenge in semi-solid formulation. Our excipients for semi-solid dose support easy local application and rapid formulation as well as regulatory compliance of ointments, creams, gels, and suppositories. The raw materials' ability to topically deliver a wide variety of drug molecules makes them ideal carriers, helping you make the most out of your semi-solid formulations.

We offer a comprehensive range of products globally. By choosing our high-quality raw materials, you will not only benefit from our Emprove® Program, but also from our regulatory know-how and global support, enabling you to bring your product to market faster and still reduce costs.

Benefits:

- High-quality pharma raw materials
- Emprove® documentation for risk assessment
- Dedicated regulatory support

Penetration Enhancement Agents: Urea and DMSO.

To increase the bioavailability of your transdermal applications, we offer a range of high-quality products, produced in accordance with GMP guidelines.

Urea

- The only API grade urea on the market with CEP and DMF
- Meets regulatory requirements according to ICHQ7 GMP guidelines; complies with Ph Eur, BP, and USP
- Includes microbiological and melamine testing

DMSO

- Complies with Ph Eur and USP and fulfills IPEC GMP guidelines
- Includes microbiological and endotoxin testing
- Emprove® Expert grade to meet your requirements for high-risk applications



Polyvinyl alcohol in topical and transdermal formulations.

Polyvinyl alcohol (PVA) is a synthetic polymer that can be used as a major component of and matrix material for semi-solid formulations. It is applied in topical creams, gels, and also in transdermal patches.

Our portfolio offers a wide range of PVA grades, including different viscosities, molecular weights, and hydrolysis grades, to provide you with high-quality products for your application.

Additional applications of PVA include ophthalmics, solid oral formulations, and cosmetics.

- Broad range of PVA types for multiple application needs
- Multi-compendial material
- Additional specifications surpassing compendial requirements to support patient safety and good tolerability
- Emprove® documentation

For more information: EMDMillipore.com/pva

The Emprove® Program

Your fast track through regulatory challenges.

Ensuring the compliance of your pharma and bio-pharma products involves the compilation of a vast amount of data, which can be time- and resource-intensive. In order to facilitate and accelerate this process, we developed our Emprove® Program. It includes 400 pharma raw and starting materials and a selection of filtration and single-use products. Each product in the portfolio is complemented with three different types of dossiers supporting you throughout the different stages of your operations: qualification, risk assessment, and process optimization – all designed to help you speed your way through the regulatory maze.

Find out more:
EMDMillipore.com/emprove



Acidulants and pH Adjusters

| | |
|---------------|---|
| 100056 | Acetic acid (glacial) 100% EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP, E 260 |
| 100058 | Acetic acid 96% EMPROVE® ESSENTIAL |
| 100090 | Adipic acid EMPROVE® ESSENTIAL Ph Eur, NF, FCC, E 355 |
| 105422 | Ammonia solution 25% EMPROVE® ESSENTIAL Ph Eur, BP |
| 100160 | Boric acid cryst., EMPROVE® ESSENTIAL Ph Eur, BP, NF |
| 100156 | Boric acid cryst., EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF |
| 100164 | Boric acid cryst., EMPROVE® API Ph Eur, BP, NF |
| 102052 | Calcium acetate hydrate extra pure DAC, FCC |
| 102119 | Calcium hydroxide precipitated ($\leq 0.0005\%$ Al) EMPROVE® ESSENTIAL USP, FCC, E 526 |
| 102110 | Calcium hydroxide EMPROVE® ESSENTIAL Ph Eur, BP, USP, JP, FCC, E 526 |
| 102102 | Calcium lactate pentahydrate EMPROVE® ESSENTIAL Ph Eur, BP, USP, E 327 |
| 100247 | Citric acid anhydrous fine-granular, suitable for use as excipient EMPROVE® exp Ph Eur, BP, JP, USP, E 330, FCC |
| 100241 | Citric acid anhydrous powder, suitable for use as excipient EMPROVE® exp Ph Eur, BP, JP, USP, E 330, FCC |
| 100242 | Citric acid monohydrate cryst., suitable for use as excipient EMPROVE® exp Ph Eur, BP, JP, USP, E 330, FCC |
| 100243 | Citric acid monohydrate powder, suitable for use as excipient EMPROVE® exp Ph Eur, BP, JP, USP, E 330, FCC |
| 100312 | Hydrochloric acid 25% EMPROVE® ESSENTIAL Ph Helv |
| 100314 | Hydrochloric acid fuming 37% EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF |
| 100366 | (S)-Lactic acid about 90%, suitable for use as excipient EMPROVE® exp Ph Eur, BP, E 270 |
| 817058 | Maleic acid EMPROVE® ESSENTIAL Ph Eur, NF |
| 100563 | ortho-Phosphoric acid 85% EMPROVE® ESSENTIAL Ph Eur, BP, JPE, NF, E 338 |
| 104956 | tri-Potassium citrate monohydrate EMPROVE® ESSENTIAL Ph Eur, BP, USP, FCC, E 332 |
| 105032 | Potassium hydroxide pellets EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF, FCC, E 525 |
| 106281 | Sodium acetate anhydrous EMPROVE® ESSENTIAL USP, FCC, E 262 |
| 106265 | Sodium acetate trihydrate extra pure EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP, FCC, E 262 |
| 106431 | tri-Sodium citrate 5, 5-hydrate EMPROVE® ESSENTIAL FU VIII, E 331 |
| 111037 | tri-Sodium citrate anhydrous, EMPROVE® ESSENTIAL USP, FCC, E 331 |
| 106432 | tri-Sodium citrate dihydrate cryst., EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP, E 331 |
| 106446 | tri-Sodium citrate dihydrate powder, EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP, E 331 |
| 106447 | tri-Sodium citrate dihydrate EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP, E 331 |
| 106345 | Sodium dihydrogen phosphate dihydrate EMPROVE® ESSENTIAL Ph Eur, BP, USP, JPE, E 339 |
| 106349 | Sodium dihydrogen phosphate monohydrate EMPROVE® ESSENTIAL BP, USP |
| 106585 | di-Sodium hydrogen phosphate anhydrous EMPROVE® ESSENTIAL Ph Eur, BP, USP, E 339 |
| 106576 | di-Sodium hydrogen phosphate dihydrate EMPROVE® ESSENTIAL Ph Eur, BP, USP |
| 106574 | di-Sodium hydrogen phosphate heptahydrate EMPROVE® ESSENTIAL DAC, USP |
| 106482 | Sodium hydroxide pellets EMPROVE® ESSENTIAL Ph Eur, BP, FCC, JP, NF, E 524 |

Acidulants and pH Adjusters

| | |
|---------------|---|
| 106303 | di-Sodium tetraborate decahydrate EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF |
| 106522 | Sodium-(S)-lactate-solution about 50%, suitable for use as excipient EMPROVE® exp Ph Eur, BP, USP |
| 100713 | Sulfuric acid 95-98% EMPROVE® ESSENTIAL Ph Eur, BP, JPE, NF |
| 108386 | Tris(hydroxymethyl)aminomethane (Trometamol), suitable for use as excipient EMPROVE® exp Ph Eur, BP, JPC, USP |
| 108372 | Triethanolamine (Trolamine) EMPROVE® ESSENTIAL Ph Eur |

Ingredients

| | |
|---------------|--|
| 101071 | Aluminium hydroxide acetate hydrate (basic aluminium acetate) pure |
| 108597 | Hydrogen peroxide 30% stabilized, EMPROVE® ESSENTIAL Ph Eur, BP, USP |
| 105995 | (-)-Menthol EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP |
| 106070 | Methyl salicylate synthetic, EMPROVE® ESSENTIAL Ph Eur, BP, NF |
| 107590 | Resorcinol extra pure Ph Eur, BP, USP |
| 101510 | Silver nitrate cryst. extra pure Ph Eur, BP, USP |
| 107983 | Sulfur for external use Ph Eur, BP |

Thickeners/Ointment Bases

| | |
|---------------|--|
| 105006 | Bole white powder low bacterial content, for internal use, EMPROVE® ESSENTIAL Ph Eur, BP |
| 104072 | Gelatin (sheets) EMPROVE® ESSENTIAL Ph Eur, BP, NF |
| 104078 | Gelatin powder, EMPROVE® ESSENTIAL Ph Eur, BP, NF |
| 104228 | Gum arabic spray-dried, EMPROVE® ESSENTIAL Ph Eur, BP |
| 817009 | Polyethylene glycol 1000 EMPROVE® ESSENTIAL Ph Eur |
| 817005 | Polyethylene glycol 1500 (scales) EMPROVE® ESSENTIAL Ph Eur |
| 817001 | Polyethylene glycol 200 EMPROVE® ESSENTIAL DAB 8 |
| 817020 | Polyethylene glycol 2000 suitable for use as excipient EMPROVE® exp DAB |
| 817018 | Polyethylene glycol 20000 EMPROVE® ESSENTIAL Ph Eur |
| 817002 | Polyethylene glycol 300 EMPROVE® ESSENTIAL Ph Eur |
| 817019 | Polyethylene glycol 3000 EMPROVE® ESSENTIAL Ph Eur |
| 817003 | Polyethylene glycol 400 EMPROVE® ESSENTIAL Ph Eur, JP |
| 817006 | Polyethylene glycol 4000 (powder) EMPROVE® ESSENTIAL Ph Eur |
| 817063 | Polyethylene glycol 4000 (scales) EMPROVE® ESSENTIAL Ph Eur |
| 817004 | Polyethylene glycol 600 EMPROVE® ESSENTIAL Ph Eur |
| 817007 | Polyethylene glycol 6000 EMPROVE® ESSENTIAL Ph Eur |
| 141365 | Polyvinyl alcohol 18-88, powder EMPROVE® exp Ph Eur, USP |
| 141355 | Polyvinyl alcohol 18-88, suitable for use as excipient EMPROVE® exp Ph Eur, USP, JPE |
| 141362 | Polyvinyl alcohol 26-88, powder EMPROVE® exp Ph Eur, USP |
| 141352 | Polyvinyl alcohol 26-88, suitable for use as excipient EMPROVE® exp Ph Eur, USP, JPE |
| 141356 | Polyvinyl alcohol 28-99, suitable for use as excipient EMPROVE® exp JPE |

Thickeners/Ointment Bases

| | |
|---------------|--|
| 141363 | Polyvinyl alcohol 40-88, powder EMPROVE® exp Ph Eur, USP |
| 141353 | Polyvinyl alcohol 40-88, suitable for use as excipient EMPROVE® exp Ph Eur, USP, JPE |
| 141360 | Polyvinyl alcohol 4-88, powder, suitable for use as excipient EMPROVE® exp Ph Eur, USP |
| 141350 | Polyvinyl alcohol 4-88, suitable for use as excipient EMPROVE® exp Ph Eur, USP, JPE |
| 141364 | Polyvinyl alcohol 5-88, powder EMPROVE® exp Ph Eur, USP |
| 141354 | Polyvinyl alcohol 5-88, suitable for use as excipient EMPROVE® exp Ph Eur, USP, JPE |
| 141361 | Polyvinyl alcohol 8-88, powder EMPROVE® exp Ph Eur, USP |
| 141351 | Polyvinyl alcohol 8-88, suitable for use as excipient EMPROVE® exp Ph Eur, USP, JPE |
| 113126 | Silicon dioxide colloidal, highly dispersed EMPROVE® ESSENTIAL Ph Eur, NF, JP, E 551 |
| 111544 | Wax white in pastilles EMPROVE® ESSENTIAL Ph Eur, BP |

Preservatives

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|---------------|--|
| 817046 | Benzalkonium chloride (50% aqueous solution) EMPROVE® ESSENTIAL Ph Eur, NF |
| 817032 | Benzalkonium chloride EMPROVE® ESSENTIAL Ph Eur, NF |
| 100130 | Benzoic acid powder, EMPROVE® ESSENTIAL Ph Eur, BP, USP, E 210 |
| 100987 | Benzyl alcohol EMPROVE® exp Ph Eur, BP, JP, NF |
| 100887 | Ethyl 4-hydroxybenzoate EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF |
| 106757 | Methyl 4-hydroxybenzoate EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF, FCC |
| 105119 | Potassium sorbate granules, EMPROVE® ESSENTIAL Ph Eur, BP, NF, FCC, E 202 |
| 105118 | Potassium sorbate powder, EMPROVE® ESSENTIAL Ph Eur, BP, NF, FCC, E 202 |
| 107427 | Propyl 4-hydroxybenzoate EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF, FCC |
| 106290 | Sodium benzoate EMPROVE® ESSENTIAL Ph Eur, BP, NF, FCC, E 211 |
| 100662 | Sorbic acid EMPROVE® ESSENTIAL Ph Eur, BP, NF, FCC, E 200 |
| 101005 | 1, 1, 1-Trichloro-2-methyl-2-propanol hemihydrate Ph Eur, BP, JP, NF |

Antioxidants

| | |
|---------------|--|
| 500949 | all-rac- α -Tocopherol EMPROVE® ESSENTIAL Ph Eur, BP, USP, E 307 |
| 500090 | L(+)-Ascorbyl palmitate EMPROVE® ESSENTIAL Ph Eur, BP, NF, FCC, E 304 |
| 817023 | Butylhydroxyanisole Ph Eur, NF, E 320 |
| 817074 | Butylhydroxytoluene Ph Eur, JPE, NF, E 321 |
| 108330 | Oxyxex® L liquid antioxidant for fats and oils EMPROVE® ESSENTIAL |
| 106946 | Oxyxex® LM antioxidant for fats and oils EMPROVE® ESSENTIAL |
| 105056 | Potassium disulfite EMPROVE® ESSENTIAL Ph Eur, NF, E 224 |
| 106357 | Sodium disulfite (sodium metabisulfite) EMPROVE® ESSENTIAL Ph Eur, BP, JP, NF, E 223 |
| 106652 | Sodium sulfite EMPROVE® ESSENTIAL Ph Eur, BP, NF, E 221 |
| 106513 | Sodium thiosulfate pentahydrate pure |
| 106514 | Sodium thiosulfate pentahydrate cryst., EMPROVE® ESSENTIAL Ph Eur, BP, USP |

Antioxidants

108421 TITRIPLEX® III (ethylenedinitrilotetraacetic acid disodium salt dihydrate) EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP

Surfactants

100989 Cetyl alcohol EMPROVE® ESSENTIAL Ph Eur, BP, NF, JP

115419 Cetyl palmitate 15 (cetylestere wax) EMPROVE® ESSENTIAL Ph Eur, NF

103672 Cholesterol from wool fat extra pure, powdered Ph Eur, BP, NF, JP

137112 Poloxamer 188 EMPROVE® EXPERT Ph Eur, NF (stabilized with 70 ppm BHT)

817034 Sodium dodecyl sulfate Ph Eur

817072 Tween® 20 (Polysorbate) EMPROVE® ESSENTIAL Ph Eur, JPE, NF

817076 Tween® 60 (Polysorbate) EMPROVE® ESSENTIAL Ph Eur, JPE, NF

817061 Tween® 80 (Polysorbate) EMPROVE® ESSENTIAL Ph Eur, JP, NF

Solvents

100971 Ethanol 96%, suitable for use as excipient EMPROVE® exp Ph Eur, BP

100967 Ethanol 96%, suitable for use as excipient EMPROVE® exp Ph Eur, JP, USP

101986 Ethanol absolut suitable for preparative chromatography Ph Eur, BP, USP

100986 Ethanol absolute, suitable for use as excipient EMPROVE® exp Ph Eur, BP, JP, USP

100864 Ethyl acetate EMPROVE® ESSENTIAL Ph Eur, BP, NF

104091 Glycerol 85%, suitable for use as excipient EMPROVE® exp Ph Eur, BP

104093 Glycerol anhydrous, suitable for use as excipient EMPROVE® exp Ph Eur, BP, JP, USP, E 422

107174 Paraffin highly liquid Ph Eur, BP, NF, JP

100909 Petroleum benzine boiling range 40–60°C EMPROVE® ESSENTIAL DAB

107478 1, 2-Propanediol EMPROVE® ESSENTIAL Ph Eur, BP, USP

100995 2-Propanol EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP

Mineral Salts

142002 Calcium chloride dihydrate EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP, FCC, E 509

106400 Sodium chloride EMPROVE® ESSENTIAL Ph Eur, BP, USP

100805 Titanium(IV) oxide EMPROVE® ESSENTIAL Ph Eur, BP, USP, JP, E171

108800 Zinc acetate dihydrate EMPROVE® ESSENTIAL Ph Eur, USP

108846 Zinc oxide EMPROVE® ESSENTIAL Ph Eur, BP, JP, USP

Penetration Enhancers

137117 Dimethyl Sulfoxide EMPROVE® EXPERT Ph Eur, USP

108432 Urea cryst. EMPROVE® API Ph Eur, BP, USP

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The typical technical data above serve to generally characterize the excipient. These values are not meant as specifications and they do not have binding character. The product specification is available separately, from the website **[EMDMillipore.com](https://www.emd-millipore.com)**

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