



The following is a list of chemicals that are available from our partners,
Mira Organics and Chemicals Pvt Ltd – Chennai, India:

MSP – Sodium Dihydrogen Phosphate
DSP – Disodium Hydrogen Phosphate
TSP – Anhydrous – Trisodium Phosphate
TSP - Do Deca (White) - Trisodium Phosphate
TSP - Do Deca (Color) - Trisodium Phosphate
SHMP - 62% - Hexasodium
SHMP - 68% - Hexasodium
SAPP – Disodium Hydroxy
MAP 12-61-00 - Mono-ammonium Phosphate
DAP – Propane-1,3 -diamine
MPP 00-52-34 – Crystals Fenthion or Tisopurine?
MPP 00-52-34 – Powder Fenthion or Tisopurine?
DPP – Powder – Diethyl Phosporothioate
DCP (Feed Grade) – Calcium Hydroxydioxido oxo phosphorane
TCP (Feed Grade) – Tetrachlorophenol
NPK 19-19-19 - Nitrogen phosphorous potassium
Potassium Sulphate
Copper Carbonate
Zinc Sulphate 33%
Zinc 12% EDTA Chelated
Copper Sulphate 24.7%
Ferrus Sulphate 27%
Manganese Sulphate
Magnesium Sulphate 9.6%

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PHOSPHATES

Phosphate is the naturally occurring form of the element phosphorous. It is a poly-atomic ion or radical comprising one phosphorous atom and four oxygen. Phosphate can form many polymeric ions, diphosphate, pyrophosphate, triphosphate, metaphosphate, etc., Phosphates find many applications in different industries depending on its format.

In the processed food industry phosphates are used as buffers, emulsifiers, nutrients and discoloration inhibitors. They are used mainly in meat and vegetable preservation and processing, pet food and animal feeds, bakery, milk and milk-based products, cereals and toothpaste manufacture.

In the industrial technical applications, phosphates are used as water softeners and limiting reagents. They are widely used in detergents, cleaners, water treatment, enzymes, paints, coatings, textiles, ceramic tiles, refractory, metal treatment (surface processing), for making fibres, dyestuffs and chemical stabilisers, as also oil drilling.

A blend of ortho and poly phosphates provide a synergistic effect to the applications in food industry. This helps improve the ultimate result of the end user product.

- To enhance the retention of juices (during freezing and cold storage)
- To prevent denaturation of proteins
- To stabilize the colour of the product
- To prevent struvite crystal formation
- To minimize cooking losses
- To increase storage life of the proceed product

An engineered reaction between Phosphoric Acid and different other salts such as Sodium, Potassium, Ammonium, Calcium etc., offers:

- Sodium Phosphates,
- Potassium Phosphates,
- Ammonium Phosphates,
- Calcium Phosphates,

The combination of salt moles and phosphate ions, again give scope for the variants within each type of phosphate.

Different such variants, its uses and the target industries for marketing are discussed in the table given under:

SULFATES

COPPER SULFATE:

Copper sulfate (granular) has multiple uses such as a feed additive micro-nutrient, fertilizer micro-nutrient and a pesticide (algaeicide and fungicide). It has been widely used for many years as a pesticide for the control of algae in ponds and dugouts. Other common names include bluestone (due to the colour of the product), copper sulfate, cupric sulphate and blue vitriol.

ZINC SULFATE:

It is used to supply zinc in animal feeds, fertilizers, and agricultural sprays. $ZnSO_4 \cdot 7H_2O$ is used in making lithopone, in coagulation baths for rayon, in electrolytes for zinc plating, as a mordant in dyeing, as a preservative for skins and leather and in medicine as an astringent and emetic. An aqueous solution of zinc sulfate is claimed to be effective at removing moss from roofs. Spraying a mixture on moss will allow the wind to simply blow off the remaining debris, however it is not recommended for use on lawns as it is as effective at removing grass.

FERRUS SULFATE:

Ferrous Sulfate products are used as a reducing agent in the treatment of hazardous wastes and as a coagulant and flocculent in the treatment of sewage waste, industrial effluents, raw drinking water and other wastewater sources. In addition, it is used as a reducing agent in the removal of phosphates and odor causing hydrogen sulfide from various waste sources.

The Agricultural, Lawn and Garden, and Turf Management industries use Ferrous Sulfate to correct iron chlorosis or deficiencies in plants and soils, to eliminate moss, to reduce alkalinity, and as a trace element or micronutrient in fertilizers. In addition, it is used in the diets of swine, poultry and other animals as a feed supplement, to prevent anemia caused by iron deficiencies.

MAGNESIUM SULFATE:

Magnesium sulfate is a compound of [magnesium](#) and sulfate. It is denoted by the chemical formula $MgSO_4$. Magnesium sulfate has a tendency to absorb water from the atmosphere, so it is often found in a hydrated form. Magnesium heptahydrate, also known as [epsom salts](#) is the most commonly available form of magnesium sulfate. Magnesium sulfate has a variety of uses, both in anhydrous (powder/flake) form as well as hydrated form.

General Uses: Magnesium sulfate is used as a fertilizer and added to magnesium deficient [soil](#) to make it fertile. Magnesium is important for the soil, as it is a key element of chlorophyll and plays a vital role in photosynthesis. It has high solubility in water and can be easily absorbed by the soil. It is added mainly to crops like [tomatoes](#), potatoes and [roses](#), which need a lot of magnesium for their growth. Anhydrous magnesium sulfate is used for industrial purposes. It acts as a dehydrating agent during the process of syntheses of organic substances. It is mainly used because of its affinity for water. It acts as a coagulating agent in [soy milk](#). So it is widely used for the preparation of nutritious [tofu](#).

Medical Uses: Magnesium sulfate or epsom salt has several [health](#) benefits. It helps to loosen up the taut muscles and nerves of the body. It can cure skin-related problems and extract toxins from our body. Some of the key medicinal values of magnesium sulfate or epsom salts are given below:

- When taken orally, magnesium sulfate acts as a [laxative](#). It helps in the removal of undigested food present in the large intestine and colon, by stimulating bowel movement and thereby acts as a remedy for [constipation](#).
- Magnesium sulfate, when administered in the veins or muscles of pregnant women, helps to delay premature labor and thereby prevent a premature birth.

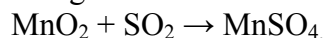
- Pregnant women with preeclampsia, a condition caused due to [high blood pressure](#), benefit from injections of magnesium sulfate, as it lowers their blood pressure and prevents a more severe condition called eclampsia. Eclampsia is a very serious condition in which pregnant women suffer convulsions during pregnancy or labor, which can be fatal for their own as well as the unborn child's life.
- Magnesium sulfate is also used to treat severe attacks of [asthma](#). When taken intravenously, it reduces the resistance within the airways and facilitates normal airflow.
- Epsom salts dissolved in water and applied on the joints can give relief to [joint pains](#) of arthritic patients. Patients suffering from [osteoporosis](#) have also experienced marked relief from [pain](#), after application of epsom salt gel, which helps to reduce swelling of joints and stiffness of surrounding muscles.
- Epsom salt is a key ingredient in bath salts. Bath salts containing epsom salt used in flotation therapy helps achieve relaxation in the body. A traditional method of comforting sore feet, is taking a footbath in water to which epsom salt has been added.
- It acts as a cosmetic agent and is easily absorbed into the skin. Thus, it helps in cleansing, soothing inflammations like boils and preventing wrinkling of the skin. When rubbed on [dry skin](#), epsom salt exfoliates the skin and gives a satin-smooth feel.
- Epsom salt is also good for many hair-related problems. When applied with shampoo, it absorbs the excess oil from oily hair, and adds a glow and bounce to the hair. A warm mixture of hair conditioner and epsom salt, when used on hair is said to give it a shine .

To conclude, magnesium sulfate is a very useful chemical. It does not have any major side effects, when used either internally or externally. However, intake of magnesium sulfate as a drug, is advisable only under medical supervision.

MANGANESE SULFATE:

Typically manganese ores are purified by their conversion to manganese sulfate. Treatment of aqueous solutions of the sulfate with sodium carbonate leads to precipitation of manganese carbonate, which can be calcined to give the oxides MnO_x .

Manganese dioxide reacts with sulfur dioxide to produce manganese sulfate:



Manganese sulfate is a by-product of various industrially significant oxidations that use manganese dioxide, including the manufacture of hydroquinone and anisaldehyde. Treatment of manganese sulfate with potassium permanganate affords manganese dioxide, a component of dry-cell batteries.

(Manganese Sulphate Monohydrate Feed Grade) applied as fertilizer, feedstuff additive, the material of paint and ink, or the material of electrolysis manganese and other manganese salt.

SI	Phosphate Type	Application	Industry
1	MSP Technical Grade Food Grade White Odourless, Hygroscopic Powder	Metal Surface Treatment, pH adjuster in boiler water, Binder in Paints & Coatings, Dry acidulate & sequestrate, Tidridge Pals, Enzymes	Metallurgy, Power, Paints & Coatings, Food Processing, Dairy, Bakery, Animal Feed
2	DSP Technical Grade Food Grade White Odourless, Hygroscopic Powder	Sequestrate, Emulsifier, buffer in food products, Mordant in dyeing & tanning & weighing silk, Regent & Buffer in analytical chemistry, Soldering & Brazing & Fire Proofing, Cleaning agent, Treatment of boiler compounds, Dye Stuff, Metal Treatment	Food, Dairy, Bakery, Animal Feed, Cereals, Evaporated Milk, Processed Cheese, Dairy, Textiles, Paints, Coatings, Ceramics, Paints, Coatings, Ceramics, Bulk Drugs (Pharma), Toothpaste, Power Plants, Metallurgy
3	TSP Technical Grade Food Grade White Odourless Granules/Powder with different Mol.weights	Photographic Development, Clarifying Sugar, Removing Boiler Scaling, Water Softening, Removing Soils, Preventing Soil From Re-Depositing, Paper Making, Laundering, Tanning, Cleaning Component in Detergent Mixing, Metal Surface Treatment, Toilet Floor Cleaning, Cheese Processing, Milk Processing, Cereal Foods, Toothpaste, Wet finishing - pH value adjustment; Aluminium work pieces - Polishing, Burnishing; Fermentation - Nutrient; Complementary feeding stuff for livestock breeding - Mineral enrichment.	Film Making & Developing, Power Plants, Water Treatment Plants, Metallurgy, Paper, Dry Cleaning, Textiles, Leather, Detergents, Cleaning Agent Manufacturers, Dairy & Milk Products, Cereal Foods, Toothpaste Manufacturers, Pharma, Agriculture (Soil Fertilisers), Sugar Processing
4	SHMP (Sodium Hexa/Poly Meta Phosphate) Technical Grade Food Grade White Glassy Granules/Powder	For industrial use, such as oil field, paper-making, textile, dyeing, petrochemical industry, tanning industry, metallurgical industry and building material industry, it is mainly used as a water softening agent in solution for printing, dyeing, and boiler; Diffusant in papermaking; slow corroding, floating agent, dispersing medium, high temperature agglomerant, detergent and soil analytical chemistry reagent. For food grade, it is mainly used as additive agent, PH adjusting agent and fermentation agent, and nourishment.	Power Plants, Sewage Plants, Industrial Water Treatment Plants, Paints, Textiles, Ceramic Tiles, Refractory Bricks, Detergents, Cleaning Products, Leather Tanning, Dairy, Meat & Sea Foods, Canned Foods, Sausages, Jams, Fruit Pulps

5	SAPP (Sodium Acid Pyro Phosphate) White Free Flowing Powder	Dispersant, Buffering and Chelating Agent, Sequesterant in Potato Treatment, Chemical Stabilizer, Oil Drilling, Improves whipping and foam stability, Leavening Agent in Bakery, Scald Agent in Canning Seafood	Detergents, Meat/Seafood/Poultry food processing, Baking/Chips making cos., Bore well/Oil Drilling, Analytical Chemistry Labs. adhesive ; stabilizer ; emulsifier; color modifier in food additive industry
6	TSP (Tetra Sodium Pyro Phosphate)	Treatment of Metals, Detergent Auxiliary, Cleaning Agent, Bleaching and Electroplating the paper, Paint Stabiliser, Buffering Agent, Emulsifier, Nutrition Ingredient Improver in foods	Meat Processing, Seafood, Pet food, toothpaste, ABS Plastic, Paper, Paints, Textile Processing, Detergents, Metallurgy
7	STPP (Sodium Tri Poly Phosphate)	Starch modification, Preservative of Nutrients, Scald Agent for Meat/Seafood/frozen foods. Detergent Auxiliary, Cleaning Agent, Boiler Water Treatment, Metal Treatment, Paint Stabilizer, Ceramic Stabilizer in Tiles	Detergents, Cleaning Compounds, Ceramic Tiles, Boiler Water Treatment, Textiles, Food grade starches, Seafood / Frozen Food processing, Paints & Coatings
8	MPP / MKP	Textile Bleaching, Surface Treatment for Metals, Pulp Processing, Fermentation Processes, Soil Stabilizing, Buffer for determining pH, Food additive, Buffering agent and Fungicide for fertilisers.	Fertilisers, Food & Beverages, Pharmaceuticals, Fungicide products
9	DPP / DKP	Buffer in Auto Cooling Systems – Anti freezing solution, Buffer in Textile Processes, Water Treatment – Cooling, Boiling, Nutrient in culturing of antibiotics, Instant fertilizer ingredient, Sequesterant in non-dairy powdered coffee creams	Deep Freezing, Textiles, Fertilisers, Water Treatment, Emulsified Dairy Products, Coffee Creamers, Cheeses, Evaporated milk, Meat processing
10	TPPP / TKPP (Tetra Potassium Pyro Phosphate)	Water softener; metal cleaner; soap and detergent builder; sequestering agent; in electrodeposition of metals; enamelling improvement; tin plating; china-clay purification; dyeing; oil-drilling muds; synthetic rubber production; cleaning agents and detergents - high solubility, hardness stabilization, soil dispersion; toothpaste - prevention of tarter.	

11	MAP	Flame-proofing agent for pulp and paper, Fire prevention coating, Ceramic Processes, Pulp and Paper Processes, Textile Processing, Baking powder with sodium bicarbonate, Fermentation agent for yeast cultures and nourishment, Plant growth ingredient, Non-chloride N,P compound fertilisers.	Fire Extinguishing Dry Powders, Paper Industry, Ceramic Industry, Textiles, Food Processing, Fertilizers
12	DAP	Flame-proofing, Fire proofing agent for pulp, paper, wood & vegetable fibres; impregnating lamp wicks; preventing after glow in matches; flux for soldering tin, copper, brass & zinc; purifying sugar; flux in yeast cultures, dentifrices, corrosion inhibitors, fertilizers	Corrosion Inhibitor Manufacturers, Fire Extinguishing Dry Powders, Paper Industry, Sugar Industry, Fertilizers, Food Processing, Dentistry, Toothpaste
13	MCP	Soil Nutrient, Leavening Agent, Anti Caking Agent, Colourless deliquescent powder used in baking powders, as a plant food, as a plastic stabilizer, and in glass. White crystalline powder used as an animal food, as a plastic stabilizer, and in glass and toothpaste. White amorphous powder used in ceramics, rubber, fertilizers, and plastic stabilizers and as a food supplement.	Fertilizer, Plastic, Rubber, Glass, Pharmaceutical, Textiles, Food & Beverages, Animal Feed
14	DCP	Leavening Agent, Anti Caking Agent, Inert Agent to fill and bind tablets	Pharmaceutical, Animal Feed, Bakery, Powdered Spices, Toothpaste, Dental Packing Products
15	TCP	Leaving and anti caking agent, raising agent for mineral salts, cheese products, nutritional supplement, antacid for porcelain and dental products, gene transfection in cell diffusion	

Where do we encounter Phosphates – How do they function?

Food and Beverages

Finished Product	Ingredient	Phosphate Function
Baked Goods		
Baking Powder	Sodium Acid Pyrophosphate 28, Monocalcium Phosphate	Acid-Base reaction with sodium bicarbonate to produce carbon dioxide (CO ₂)
Cakes, Mixes	Sodium Acid Pyrophosphate, Monocalcium Phosphate, Salp	Moderate action leavening; double action leavening
Cake Donuts	Sodium Acid Pyrophosphate 40, Sodium Acid Pyrophosphate 43	Fast action Leavening
Refrigerated Dough	Sodium Acid Pyrophosphate 22	Heat activated leavening
Beverages		
Colas	Phosphoric Acid	Acidulant
Chocolate Milk	Tetrasodium Pyrophosphate	Suspend cocoa
Dry Mixes	Tricalcium Phosphate	Prevent caking; clouding agent
Buttermilk	Tetrasodium Pyrophosphate, Disodium Phosphate	Maintain protein dispersion
Orange Juice	Tricalcium Phosphate	Calcium and Phosphorus fortification
Strawberry Flavor Milk	Tetrasodium Phosphate	Bind iron to maintain pink color
Cereals		
Cooked Cereals	Disodium Phosphate Tricalcium Phosphate	Decrease cooking time; Calcium and phosphorus fortification
Extruded, Dry Cereals	Disodium Phosphate, Trisodium Phosphate, Tricalcium Phosphate	Aid in the flow through extruder; calcium and phosphorus fortification

Cheese		
Cottage Cheese	Phosphoric Acid	Direct set by acidification
Dips and Sauces	Disodium Phosphate, Trisodium Phosphate, Sodium Hexametaphosphate	Emulsifying Action
Imitation	Disodium Phosphate	Emulsifying Action
Cheese Slices	Disodium Phosphate, Trisodium Phosphate	Emulsifying Action
Starter Cultures	Disodium Phosphate, Dipotassium Phosphate	Inhibit Phage
Chip Dips	Disodium Phosphate, Sodium Hexametaphosphate, Sodium Tripolyphosphate	Maintain homogeneity
Baked Chips	Monocalcium Phosphate	Develop characteristic surface
Imitation Dairy Products		
Non-dairy creamer	Dipotassium Phosphate	Buffer for smooth mixing into coffee
Frozen desserts		
Whipped topping		
Egg Products		
Whole	Monosodium Phosphate, Monopotassium Phosphate	Color stability
Egg whites	Sodium Hexametaphosphate	Improve whipping, foam stability
Fruit		
Tomatoes, berries	Monocalcium Phosphate	Maintain firmness when canned
Ice Cream		
Hard, soft, imitation	Tetrasodium Pyrophosphate	Prevent churning or gritty texture development of fat

Meat Products		
Ham, corned beef	Sodium Tripolyphosphate, Sodium Tripolyphosphate/Sodium Hexametaphosphate Blends	Moisture binding
Sausage, franks, bologna	Sodium Tripolyphosphate, Tetrasodium Pyrophosphate, Tetrapotassium Phosphate, Tetrapotassium Phosphate, Sodium Acid Pyrophosphate	Emulsion development Reduced sodium Cure color development
Roast beef	Sodium Tripolyphosphate	Moisture binding
Pasta		
Pasta products	Disodium Phosphate	Decrease cook time
Potatoes		
Baked Potato Chips	Monocalcium Phosphate	Create the bubbles surface
French Fries, hash browns, potato flakes	Sodium Acid Pyrophosphate	Bind iron to inhibit iron induced blackening
Poultry Products		
Poultry products	Sodium Tripolyphosphate; Sodium Tripolyphosphate/Sodium Hexametaphosphate Blends	Moisture binding
Carcass washes	Trisodium Phosphate	Remove <i>Salmonella</i> and <i>Campylobacter</i> (bacterial pathogens)
Dairy Gels		
Puddings, instant cheesecakes	Monocalcium Phosphate, Disodium Phosphate, Tetrasodium Pyrophosphate	Salts to develop the thickened texture

Seafood		
Shrimp	Sodium Tripolyphosphate	Mechanical peeling of shrimp
Canned Crab	Sodium Acid Pyrophosphate	Bind copper from blood to prevent blue discoloration
Canned Tuna	Sodium Acid Pyrophosphate	Adjust pH to prevent struvite formation (crystals that look like glass)
Surimi	Sodium Tripolyphosphate/Tetrasodium Pyrophosphate Blends	Cryoprotectant to protein

Pharmaceuticals & Cosmetics

Finished Product	Ingredient	Phosphate Function
Vitamins	Tricalcium Phosphate, Dimagnesium Phosphate	Calcium and phosphorus
Prescription and Over the Counter (OTC) Tablets	Dicalcium Phosphate, Tricalcium phosphate	Inert ingredient to fill and bind tablets
Toothpaste	Dicalcium Phosphate Dihydrate	Abrasive
Tooth Gels	Sodium Tripolyphosphate	Whitening agent
Tartar Control Gels and Pastes	Tetrasodium Pyrophosphate, Sodium Acid Pyrophosphate	Tartar control
Smoker's Toothpolish	Tricalcium Phosphate	Abrasive to remove stain
Ophthalmics	Mono- and Di- Sodium Phosphates	Buffers to maintain a given pH
Tube Feedings	Monopotassium Phosphate, Mono- and Di-sodium phosphates	Potassium and/or Sodium replacing ingredient
Intravenous Fluids	Monopotassium Phosphate	Potassium replacing electrolyte

Mouthwash	Sodium Tripolyphosphate, Tetrasodium Pyrophosphate, Sodium Hexametaphosphate	Tartar control ingredients
Cosmetics	Mono- and Di- sodium phosphates	Buffers
Effervescent Tablets	Monocalcium Phosphate, Monohydrate	Production of carbon dioxide (CO ₂) via acid-base reaction with sodium bicarbonate
Bath Crystals	Monosodium Phosphate, Sodium Hexametaphosphate	Control of pH

Other Important Uses

Finished Product	Ingredient	Phosphate Function
Antifreeze	Dipotassium Phosphate	Resistant to temperature extremes and buffer to maintain alkaline pH
Asphalt Modification	Polyphosphoric Acid	Modifies paving grade asphalt to meet performance requirements
Automatic Dishwashing Detergent	Sodium Tripolyphosphate	Softens water, suspends soil and serves as an anti-spotting agent
Boiler Water	Sodium or Potassium Tripolyphosphate; Sodium Hexametaphosphate; Tetrasodium Pyrophosphate	Prevent the build up of scale in boilers; remove scale that may have accumulated
Car Wash Detergent	Sodium Tripolyphosphate	Softens water, removes soils and keeps soil from redepositing
Fire Extinguishers	Mono- and Di- ammonium Phosphates	Fire retardant
Flat Panel Displays	Phosphoric Acid	Etchant and cleaner
Heavy Duty Cleaners	Trisodium Phosphates, Tetra- Sodium and Potassium Pyrophosphates, Sodium Potassium Pyrophosphate	Remove oils and greases

Industrial and Institutional Cleaners	Sodium Tripolyphosphate, Tetrasodium Pyrophosphate	Softens water, dissolves fats and oils and keeps them from redepositing
Integrated Circuitry	Phosphoric Acid	Etchant and cleaner
Latex Paint	Sodium Potassium Tripolyphosphate, Potassium Tripolyphosphate	Dispersing Agent
Milk Scale Removal	Phosphoric Acid	Dissolves calcium based milk scale on dairy processing equipment
Organic Synthesis	Polyphosphoric Acid	Production of phosphate esters and catalysts in organic reactions; Synthesis of dyes
Paint and Wall Cleaner	Trisodium Phosphate, Dodecahydrate	Removes oil, grease and soils
Metal Cleaning	Phosphoric Acid, Monosodium Phosphate	Remove grease and coatings prior to painting
Metal Finishing (Anodizing)	Phosphoric Acid	Creates bright, shiny finish to metal
Water Softening	Sodium Hexametaphosphate Sodium Tripolyphosphate	Bind Calcium and Magnesium
Water Treatment	Phosphoric Acid Sodium Acid Pyrophosphate Tetrasodium Pyrophosphate	Form surface coating on pipes to prevent leaching of lead; sequester minerals as iron
Oil Drilling	Sodium Hexametaphosphate	Make drilling muds more flowable
Fertilizers	Monoammonium Phosphate; Diammonium Phosphate; Dipotassium Phosphate	Nutrients for plant growth
Citric Acid Fermentations	Dipotassium Phosphate	Growth factor
Cotton Processing	Tetrasodium Pyrophosphate	Bind iron and vanadium that hinder peroxide bleach
Synthetic Rubber	Tetrapotassium Pyrophosphate	Catalyst for butadiene and styrene
Styrofoam Production	Tricalcium Phosphate	Polymerization aid

Gypsum Wallboard	Sodium Trimetaphosphate	Firming of the composition board
Modified Starch	Sodium Tripolyphosphate; Sodium Trimetaphosphate	Produce starch mono- and di- esters in sealers and coatings
Paper Processing	Sodium Tripolyphosphate; Sodium Hexametaphosphate	Dispersants for coating loads, colorants and resins
Ceramics	Tricalcium Phosphate	Impart opalescent
Oven Proof Bakeware	Tricalcium Phosphate	Impart heat resistance
Photocopier Toner	Tricalcium Phosphate	Dispersing agent
Industrial Sodium Chloride	Tricalcium Phosphate	Anticaking agent
Refractory	Phosphoric Acid	Impart heat resistance for processing in the steel industry
Cement	Sodium Tripolyphosphate, Tetrasodium Pyrophosphate, Sodium Monofluorophosphate	Retard or delay the thickening of cement slurries especially when poured at great depths
Dyeing Wool	Diammonium Phosphate	Control of pH in dye bath to allow even penetration of dye through the wool