



# Paraformaldehyde (91%-93%)

**KEY FEATURES:**

- Solid polymer of formaldehyde
- Slightly soluble in alcohols
- Soluble in hot water
- Reacts chemically as formaldehyde





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## PRODUCT DESCRIPTION

**Paraformaldehyde** is a white, solid polymer of formaldehyde with the pungent, characteristic formaldehyde odor. **Paraformaldehyde** is composed of varying molecular weight polymers of polyoxymethylene glycols. It is generally prepared as 91% or 93% by weight formaldehyde with the remainder being free and combined water. The combined water is the terminating agent for the **paraformaldehyde** chains. **Paraformaldehyde** is slightly soluble in alcohols and insoluble in ethers, hydrocarbons and carbon tetrachloride. It is relatively insoluble in cold water, but soluble in hot water with depolymerization. The solubility and rate of solution of **paraformaldehyde** in water are greatly influenced by pH and temperature. Both acidic and alkaline pHs and higher temperatures accelerate the rate of solution. Once dissolved, the **paraformaldehyde** solution behaves like the methanol-free formaldehyde solution of the same concentration. **Paraformaldehyde** reacts chemically as formaldehyde at a rate determined by its rate of depolymerization under the conditions of use.

## APPLICATIONS

**Paraformaldehyde** is widely used by resin manufacturers seeking low water content or more favorable control of reaction rates when compared to aqueous formaldehyde solutions. With less dehydration required, **paraformaldehyde** resins are made in less time, with better yields. Utility costs are reduced because **paraformaldehyde** requires less steam, cooling water and power for water removal; enables the capability of charging more reactants to the process equipment; and increases reactor capacity. Finally, less wastewater is produced.

**Paraformaldehyde** provides a source of formaldehyde for the synthesis of a phenol-, urea-, furfural alcohol-, and resorcinol- and melamine-formaldehyde resins. These products find extensive usage in industrial coatings, wood products, textiles and foundry resins. Oil well drilling chemicals, lubricating oil additives, adhesive resins and electrical component molding materials also use **paraformaldehyde**. Miscellaneous end uses include photographic and graphic arts chemicals, pigments, rubber antioxidants, fluorescent tube and ink chemicals, pharmaceuticals, slow-release fertilizers and others. **Paraformaldehyde** can also be used in oil and gas applications.

## TYPICAL PROPERTIES

	Unit	
Particle size prills		80% between 0.1-1.0mm
Melting range	°C	120-170
Vapor pressure varies with dew point being greatest at the dew point	Dry Air	Dew Point
at 30°C, mm Hg	1	3
at 60°C, mm Hg	5	15
Vapor density (air = 1)		1.03
Sublimation temperature	°C	150
Heat of combustion, kcal/mole equivalent CH <sub>2</sub> O (98% paraformaldehyde)		120.05