

Inorganic Cyanide compounds



An inorganic cyanide compound is any chemical compound that contains a monovalent combining group -CN. This group, known as the cyano group, consists of a carbon atom triple-bonded to a nitrogen atom. Most of the cyanides are highly toxic. When cyanide combines with chemicals from the metal groups, it forms simple salts. Calcium cyanide, potassium cyanide, and sodium cyanide are all examples of simple cyanide salts. They are all white solids, and soluble in water. Cyanide anion, owing to its high nucleophilicity, can be introduced as nitriles in organic compounds through replacement of halides or other leaving groups. Cyanides can be used to lengthen a carbon chain by one step.



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Inorganic Cyanates



Inorganic cyanate is a salt or ester of cyanic acid containing the group $[\text{OCN}]^-$ or $[\text{NCO}]^-$. It acts as a base in aqueous solution, forming isocyanic acid, HNCO . The cyanate ion is linear and an ambidentate ligand. It can donate the pair of electrons on the nitrogen atom or the oxygen atom, or both. It can also act as a bridging ligand. In N-bonded cyanate complexes the M-NCO unit has a linear structure, but with O-bonded cyanate the M-O-C unit is bent.



68107 Potassium selenocyanate, 98.5%



45411 Silver cyanate, 98%



A12413 Sodium cyanate, 95%












Inorganic Cyanides














Inorganic cyanides are compounds which are salts of hydrocyanic acid. Inorganic cyanides have the cyano group bounded to metal atoms. They are all white solids, and soluble in water. In acidic water, inorganic cyanides liberate gaseous hydrogen cyanide. Inorganic cyanides are incompatible with isocyanates, nitrides and peroxides. Due to their high nucleophilicity, cyanide ions can be introduced into organic compounds by replacement of halides, or other leaving groups. Cyanide can be used to lengthen a carbon chain by one unit.

Examples of inorganic cyanides include: calcium cyanide, potassium cyanide, sodium cyanide, lead cyanide, potassium cyanide, and silver cyanide. Some commercial applications of inorganic cyanides are in electroplating, metallurgy, photographic processes, the extraction of ores (gold and silver), and tanning leather. In nature, substances yielding cyanide are present in certain seeds, such as the pit of the wild cherry and the seeds of apples. Cyanide salts find use in the manufacture of important reactive compounds, such as methyl methacrylate, adiponitrile and acrylonitrile, and hence are useful in the production of acrylic fibres, synthetic rubber, and plastics. Metals have a high affinity to the cyanide anion due to its compactness, negative charge, and ability to form pi-bonding. Many coordination compounds contain cyanide as ligand, for example, Prussian blue, hexacyanides, tetracyanides and dicyanides.



	B21908	Ammonium iron(III) hexacyanoferrate(II) hydrate, tech.
	12135	Copper(I) cyanide
	L20448	Cyanamide, 50% w/w aq. soln., stab.
	43804	Cyanide, standard solution, Specpure®, CN ⁻ 1000µg/ml
	32731	Cyanogen bromide
	12552	Gold(I) potassium cyanide, Premion®, 99.96% (metals basis), Au 67.6% min
	39259	Iron(III) hexacyanoferrate(II)
	39480	Nickel(II) cyanide tetrahydrate
	33356	Potassium cyanate, 97%
	L13273	Potassium cyanide, 97+%
	12136	Potassium cyanide, ACS, 96.0% min









	35585	Potassium hexacyanoferrate(II), 0.1N Standardized Solution
	A16946	Potassium hexacyanoferrate(III), 98+%
	33357	Potassium hexacyanoferrate(III), ACS, 99.0% min
	A15736	Potassium hexacyanoferrate(II) trihydrate, 98+%
	33358	Potassium hexacyanoferrate(II) trihydrate, ACS, 98.5-102.0%
	12551	Potassium silver cyanide, 99.9% (metals basis), Ag 54.2%
	39434	Potassium tetracyanonickelate(II) hydrate
	11424	Silver cyanide, 99%
	12137	Sodium cyanide, ACS, 95% min
	L13278	Sodium cyanide, granules, 98%
	87839	Sodium cyanoborohydride, 95%
	39660	Sodium hexacyanoferrate(II) decahydrate, 99%
	14158	Zinc cyanide, 85%
	L15836	Zinc cyanide, 98%

Inorganic Thiocyanates



Inorganic thiocyanate is also known as rhodanide. It is the anion $(\text{SCN})^-$ and conjugate base of thiocyanic acid. Common derivatives include the colorless salts, such as potassium thiocyanate and sodium thiocyanate. Thiocyanates $(\text{SCN})^-$ are resonance stabilized such that the sulfur or nitrogen can act as a nucleophile, a metal ligand, and serve as linkage isomers. It is an ambidentate ligand; $(\text{SCN})^-$ can also bridge two (M-SCN-M) or even three metals. The Thiocyanate ion forms a complex with Fe^{3+} ions in solution, turning the solution into a blood red color.



	A10632	Ammonium thiocyanate, 98+%
	36247	Ammonium thiocyanate, ACS, 97.5% min
	B23460	Cobalt(II) thiocyanate, 98+%
	40220	Copper(I) thiocyanate, 96% min
	11349	Lithium thiocyanate hydrate
	37106	Mercury(II) thiocyanate
	A11867	Sodium thiocyanate, 96%
	33388	Sodium thiocyanate, ACS, 98.0% min

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