

# Pyrophoric, Water Reactive and Shock Sensitive Chemicals

## Partial List of Pyrophoric Chemicals

Grignard reagents,	RMgX
Metal alkyls and aryls, such as	RLi, RNa, R <sub>3</sub> Al, R <sub>2</sub> Zn
Metal carbonyls, such as	Ni(CO) <sub>4</sub> , Fe(CO) <sub>5</sub> , Co <sub>2</sub> (CO) <sub>8</sub>
Alkali metals such as	Na, K
Metal powders, such as	Al, Co, Fe, Mg, Mn, Pd, Pt, Ti, Sn, Zn, Zr
Metal hydrides, such as	NaH, LiAlH <sub>4</sub>
Nonmetal hydrides, such as	B <sub>2</sub> H <sub>6</sub> and other boranes, PH <sub>3</sub> , AsH <sub>3</sub>
Nonmetal alkyls, such as	R <sub>3</sub> B, R <sub>3</sub> P, R <sub>3</sub> As
Phosphorus (white)	

## Partial List of Water Reactive Chemicals

Acetic anhydride	n-butyl Lithium
Acetyl halides	n-butyl Trichlorosilane
Alkyl aluminum chloride	Cadmium acetylide
Allyl trichlorosilane	Cadmium amide
Aluminum aminoborohydride	Calcium
Aluminum borohydride	Calcium carbide
Aluminum bromide	Calcium hydride
Aluminum chloride	Calcium oxide
Aluminum fluoride	Calcium phosphide
Aluminum hydrophosphide	Cesium amide
Aluminum phosphide	Cesium hydride
Aluminum tetrahydroborate	Cesium phosphide
Amyl trichlorosilane	Chlorine dioxide
Anisoyl chloride	Chlorine monofluoride
Antimony tribromide	Chlorine pentafluoride
Antimony trichloride	Chlorine trifluoride
Antimony trifluoride	Chloroacetyl chloride
Antimony triiodide	Chlorodiisobutyl aluminum
Barium	Chlorophenyl isocyanate
Barium peroxide	Chromyl chloride
Barium carbide	Copper acetylide
Barium sulfide	Cyclohexenyl trichlorosilane
Benzene phosphorus dichloride	Cyclohexyl trichlorosilane
Benzyl chloride	Decaborane
Benzyl silane	Diborane

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Benzyl sodium	Diethyl aluminum chloride
Beryllium hydride	Diethyl dichlorosilane
Beryllium tetrahydroborate	Diethyl zinc
Bismuth pentafluoride	Diisopropyl beryllium
Borane (and boranes)	Dimethyl dichlorosilane
Boron bromodiiodide	Dimethyl magnesium
Boron dibromiodide	Diphenyl dichlorosilane
Boron phosphide	Diphenyl diisocyanate
Boron tribromide	Disulfuryl chloride
Boron trichloride	Dodecyl trichlorosilane
Boron trifluoride	Ethyl trichlorosilane
Bromine monofluoride	Fluorine monoxide
Bromine pentafluoride	Fluorosulfonic acid
Bromine trifluoride	Gold acetylde
Bromodiethyl aluminum	Hexadecyl trichlorosilane

Hexyl trichlorosilane	Potassium hydride
Hydrobromic acid	Potassium oxide
Iodine monochloride	Potassium peroxide
Lithium	Propyl trichlorosilane
Lithium aluminum hydride	Pyrosulfuryl chloride
Lithium amide	Silicon tetrachloride
Lithium ferrosilicon	Silver acetylde
Lithium hydride	Sodium hydride
Lithium peroxide	Sodium methylate
Lithium silicon	Sodium peroxide
Magnesium peroxide	Sodium potassium alloy
Methyl aluminum sesquibromide	Stannic chloride
Methyl aluminum sesquichloride	Sulfonyl fluoride
Methyl dichlorosilane	Sulfuric acid (>70%)
Methylene diisocyanate	Sulfur chloride
Methyl isocyanate	Sulfur pentafluoride
Methyl trichlorosilane	Sulfur trioxide
Methyl magnesium bromide	Sulfuryl chloride
Methyl magnesium chloride	Thiocarbonyl chloride
Methyl magnesium iodide	Thionyl chloride
Nickel antimonide	Thiophosphoryl chloride
Nonyl tichlorosilane	Titanium tetrachloride
Octyl trichlorosilane	Toluene diisocyanate
Phenyl trichlorosilane	Triethyl aluminum
Phosponium iodide	Triisobutyl aluminum
Phosphorous pentoxide	Trimethyl aluminum
Phosphorous oxychloride	Trichlorosilane
Phosphorous pentasulfide	Tri-n-butyl aluminum

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Phosphorous trisulfide	Trichloroborane
Phosphorous (red)	Triethyl arsine
Phosphorous oxybromide	Triethyl stibine
Phosphorous pentachloride	Tri-n-butyl borane
Phosphorous sesquisulfide	Tripropyl stibine
Phosphorous tribromide	Trioctyl aluminum
Phosphorous trichloride	Trisilyl arsine
Polyphenyl polymethyl isouantate	Trivinyl stibine
Potassium	Vanadium trichloride
	Vinyl trichlorosilane
	Zinc acetylide

### Partial List of Shock Sensitive Chemicals

This reactivity is typically described as "shock, or impact sensitivity". There are other initiating mechanisms for these compound Consult the available literature regarding these chemicals.

Acetyl azide	Chloropicrin
Acetyl nitrate	Copper acetylide
Ammonium nitrate	Cyanuric triazide
Ammonium azide	Diazidoethane
Ammonium bromate	Diazomethane
Ammonium chlorate	Diazodinitrophenol
Ammonium dichromate	Dinitrophenol
Ammonium hexanitrocobaltate	Dinitrophenylhydrazine
Ammonium nitrate	Diethylene glycol dinitrate
Ammonium nitrite	Dipentaerithritol hexanitrate
Ammonium periodate	Dipicryl amine
Ammonium permanganate	Disulfur dinitride
Ammonium picrate	Ethyl nitrite
Ammonium tetraperoxychromate	Fluorine azide
Azidocarbonyl guanidine	Glycol dinitrate
Barium azide	Glycol monolactate trinitrate
Barium chlorate	Guanyl nitrosaminoguanyl hydrazine
Benzene diazonium chloride	HMX
Benzotriazole	Hydrazoic acid
Benzoyl peroxide	Hydrazine azide
Bismuth nitrate	Lead azide
Boron triazide	Lead dinitrorescorcinatate (Styphnate)
Butenetroil trinitrate	Lead mononitrorescorcinatate
t-butyl Hypochlorite	Mannitol hexanitrate
Cadmium azide	Lithium nitrate

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Cadmium chlorate	Lithium nitride
Cadmium hexamine chlorate	Lithium peroxide
Cadmium hexamine perchlorate	Mercuric oxycyanide
Cadmium nitrate	Mercury oxalate
Cadmium nitride	Mercury fulminate
Cadmium trihydrazine chlorate	Nitroglycerin
Calcium nitrate	Nitrosoguanidine
Calcium permanganate	Pentaerythritol tetranitrate (PETN)
Cesium azide	Perchloric acid
Chlorine dioxide	Picramide and metal picrates
Chlorine trioxide	Picric acid, Picrates, Picryl cmpds
Chloroacetylene	Picryl hydrazyl

Polyvinyl nitrate	Sodium picramate
Potassium chlorate	Sodium Superoxide
Potassium dinitrobenzofuroxan	Strontium chlorate
Potassium nitrate	Strontium nitrate
Potassium peroxide and Superoxide	Strontium perchlorate
RDX	Tetranitromethane
Silver acetylde	Tetraselenium tetranitride
Silver azide	Tetrazene
Silver dinitrorescorcinat (Styphnate)	Tetryl
Silver fulminate	Thallium nitride
Silver nitride	Trilead dinitride
Silver oxalate	Trinitroanisoie
Silver tetrazene	Trinitrobenzene
Sodium azide	Trinitrobenzoic acid
Sodium chlorate	m-Trinitrocresol
Sodium chlorite	Trinitronaphthalene
Sodium nitrate	Trinitroresorcinol
Sodium perchlorate	Trinitrotoluene
Sodium perborate and monohydrate	Urea nitrate
Sodium peroxide	Vinyl azide
	Zinc peroxide