

# Chemical Classification Cheat Sheet

## Oxidizers

### "Peroxides & Peracids"

- Hydrogen peroxide
- Benzoyl peroxide
- (metal) peroxide
- Peracetic acid
- T-butyl hydroperoxide
- Perchloric acid



### "Bromate & Bromites"

- Sodium bromate
- Bromous acid

### Chlorates & chlorites"

- Sodium hypochlorite
- Sodium perchlorate
- (Metal)chlorite
- Chloric acid

### "Nitrates & nitrites"

- Potassium nitrate
- Nitrous acid
- Nitric acid
- Ceric ammonium nitrate

### "Per-Compounds"

- Perhaloates
- Perborates
- Percarbonates
- Perchlorates
- Permanganates
- Persulfates

### "Chromates & Dichromates"

- Calcium chromate
- Sodium dichromate

### "Iodates & iodites"

- Sodium periodate
- Calcium hypiodite

### Other

- Br<sub>2</sub>, I<sub>2</sub>, Cl<sub>2</sub>, O<sub>2</sub>, F<sub>2</sub>
- Ozone
- Nitrous oxide
- Bleach
- Mineral acid
- Sulfuric acid

## Potentially Explosive Compounds

### "Diazo, azo and azide"

- Diazomethane
- (heavy) metal azides
- Phenyl azide



### "Fulminate"

- Mercury fulminate
- Silver fulminate

### "Nitro, dinitro and trinitro"

- Nitromethane
- Dinitrophenyl hydrazine
- Trinitrotoluene
- Trinitrophenol (picric)

### "Acetylides"

- (Metal) acetylide

### "Peroxy, perchlorate"

- Benzoyl peroxide
- Butanone peroxide
- Ammonium perchlorate

### "Picrate"

- Ammonium picrate

### "Nitroso"

- Nitrosyl chloride
- 2-methyl 2-nitrosopropane

### Others

- Tetrazole
- Hydrazines

## Peroxide Formers

### "Ethers"

- Isopropyl ether
- Vinyl ether
- Diethyl ether
- MTBE



### "Cyclo-enes"

- Cyclopentene
- Cyclohexene

### "Dienes"

- butadiene

### "Furans"

- Tetrahydrofuran
- furan

### "Vinyl "

- vinyl acetate
- Vinyl chloride

### Others

- Dioxane
- Chloroprene

## Acids, Inorganic

### "Hydrogen halides"

### "hydrogen (root) ide"

### "hydro (root) ic acid"

- Hydrofluoric acid (HF)
- Hydrochloric acid (HCl)

### Oxyacids

- "(root) ic/ous acid"
- Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>)
- Perchloric acid (HClO<sub>4</sub>)
- Nitric acid (HNO<sub>3</sub>)

## Acids, Organic

### "(root) oic acid"

### Organic root (meth, eth, but)

- Acetic acid (CH<sub>3</sub>COOH)
- Butyric acid (CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>COOH)
- Trichloroacetic acid (CH<sub>3</sub>COOH)
- Formic acid (HCOOH)
- Salicylic acid (C<sub>6</sub>H<sub>4</sub>(OH)COOH)



## Bases, Inorganic

### "Hydroxides"

- Potassium hydroxide (KOH)
- Calcium hydroxide (Ca(OH)<sub>2</sub>)

### Metal/Min "carbonates"

- Sodium bicarbonate (NaHCO<sub>3</sub>)
- Potassium carbonate (K<sub>2</sub>CO<sub>3</sub>)

### Others

- Ammonia (NH<sub>3</sub>/NH<sub>4</sub>OH)
- Calcium oxide (CaO/Ca(OH)<sub>2</sub>)

## Bases, Organic

### "Organolithiums"

- N-butyllithium (C<sub>4</sub>H<sub>9</sub>Li)

### "Grignards - RMgX"

- Ethylmagnesium bromide (CH<sub>3</sub>CH<sub>2</sub>MgBr)

### "Amines/Amides"

- Triethylamine (N(CH<sub>2</sub>CH<sub>3</sub>)<sub>3</sub>)
- Lithium diethylamide (C<sub>4</sub>H<sub>9</sub>LiN)

### "Metal Alkoxides"

- Potassium t-butoxide
- Lithium ethoxide
- "methoxides"

### "Pyridines"

- Pyridine (C<sub>5</sub>H<sub>5</sub>N)



## Flammables

### Organic Solvents

- Benzene
- Hexanes
- Acetone
- Ethers
- Alcohols

### Solids

- Alkali metals (Li, Na, K)
- Naphthalene
- Lithium amide
- Anhydrous sodium sulfide

### Gases

- Acetylene
- Butane
- Ethylene



## Water Reactives

### Alkali metals

- Sodium, lithium

### Anhydrides

- Acetic anhydride

### Hydrides

- Sodium hydride
- Lithium hydride

### Organometallics

- n-butyllithium
- Trimethylaluminum
- (Li, Na, Mg, Al)

### Metal phosphides

- Aluminum phosphide
- Magnesium phosphide



## Pyrophorics

### Alkali metals

- Rubidium, cesium

### Fine metal dusts

- Potassium, sodium

### alkyllithiums

- n-butyllithium
- t-butyllithium

### Organometallics

- Diethyl zinc
- Trimethylaluminum

### Grignard Reagents "Alkyl-Mg-halogen"

- Vinyl magnesium chloride
- Propyl magnesium chloride

### Metal hydrides

- Barium hydride
- Aluminum hydride

