

# INTRO TO ACIDS & BASES

CH40S

UNIT 4 – ACID BASE EQUILIBRIUM

WIEBE

1

## GENERAL ACID CONCERNS

- Exothermic when dissolved in water.
- Always add **acid to water**, not other way around!
- “Do as you oughter, add acid to water!”



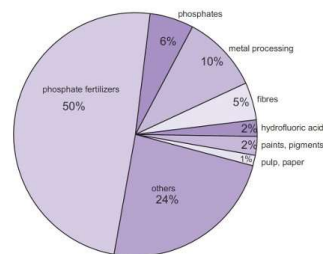
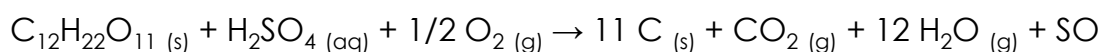
2

# SULPHURIC ACID (OIL OF VITREOL)



- Strong dehydrating agent
- Strong oxidizing agent
- Good industrial catalyst
- Electrolyte in car batteries

**DEMO:** Sugar & Sulfuric Acid



Most produced chemical on earth...324 million tons/year!

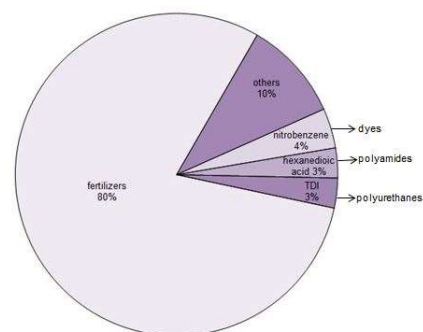
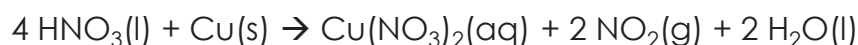
3

# NITRIC ACID



- Used in the production of ammonium nitrate ( $\text{NH}_4\text{NO}_3$ ), a major component in fertilizer.
- Strong oxidizing agent

**DEMO:** Copper and Nitric Acid



4.5 million tons/year!

[Ira Remsen Story](#)

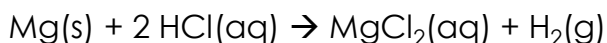
4

## HYDROCHLORIC ACID (MURIATIC ACID)

### HCl

- Stomach acid – aids in digesting protein
- Steel manufacturing
- Cleaning concrete
- Killing mold

**DEMO:** Magnesium and Hydrochloric acid



Decreasing Reactivity	Name	Symbol
	Lithium	Li
	Potassium	K
	Calcium	Ca
	Sodium	Na
	Magnesium	Mg
	Aluminum	Al
	Zinc	Zn
	Iron	Fe
	Lead	Pb
	(Hydrogen)	H*
	Copper	Cu
	Mercury	Hg
	Silver	Ag

20 million tons/year!

[Meat and Hydrochloric Acid](#)

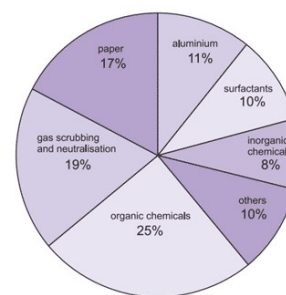
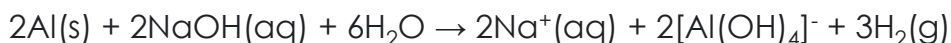
5

## SODIUM HYDROXIDE (CAUSTIC SODA/LYE)

### NaOH

- Household cleaners
- Reacts with fats to produce soap
- Paper production
- Synthesis of Rayon

**DEMO:** [Aluminum + Sodium Hydroxide](#)



Most produced base (alkali) on earth...70 million tons/year!

6