



PROFESSIONAL

Soil & Soil Removal

SOIL CHARACTERISTICS

- ▶ Soil is anything you want to remove from a surface.
- ▶ The soil influences the type of cleaner to be used. The soil and cleaner will react with each other (neutralize) causing the soil to become more water soluble and thereby rinsed away with water.
- ▶ Soils can be classified by pH. Examples are:
 - **Acid Soils** - Food related materials (FOG)
 - **Alkaline Soils** – Mineral deposits, Soap Scum, Milk Stone
 - **Neutral Soils** – Petroleum oils/greases, Cosmetics



SOIL CHARACTERISTICS

ALKALINE pH soil

→ remove with an **ACID** based product

NO pH soil

→ remove with a **SOLVENT**

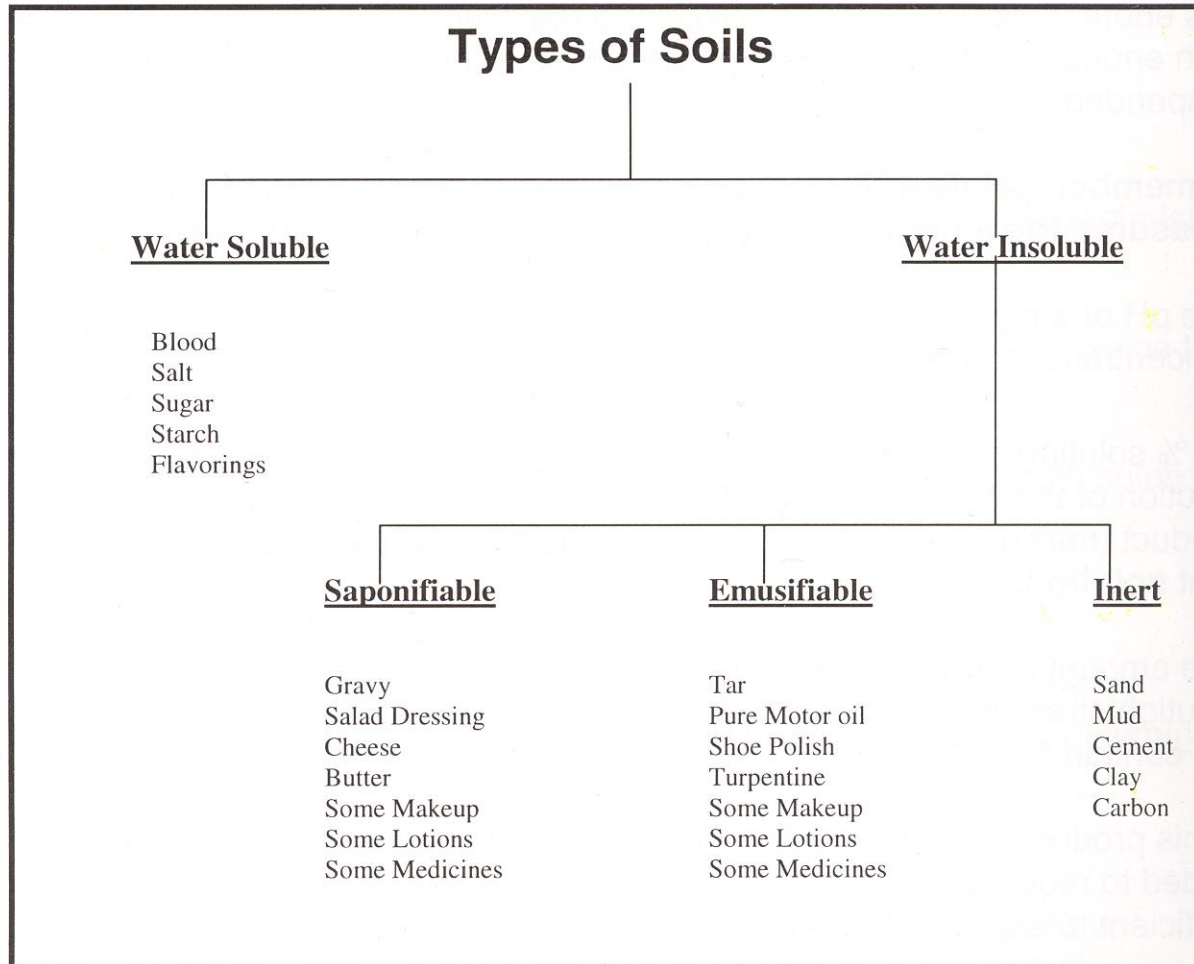
ACIDIC pH soil

→ remove with an **ALKALINE** based product



COMBINATION SOILS

Types of Soils



SURFACE CHARACTERISTICS

- ▶ Surfaces also have chemical properties.

Alkaline: Metals, concrete, masonry (acidic products will damage)

Neutral: Most plastics, many paints, floor finishes (use a neutral pH cleaner)

Acidic: Aluminum (more or less), human skin (caustic products will damage)

- ▶ Surfaces may restrict the type of cleaner that can be used.



BASIC CLEANING CONCEPT

ALKALIES clean **ACIDS**

NEUTRAL pH cleans **NEUTRAL pH** (pH: 5 to 9)

ACIDS clean **ALKALIES**

SOLVENTS clean **NO pH (Solvent)**



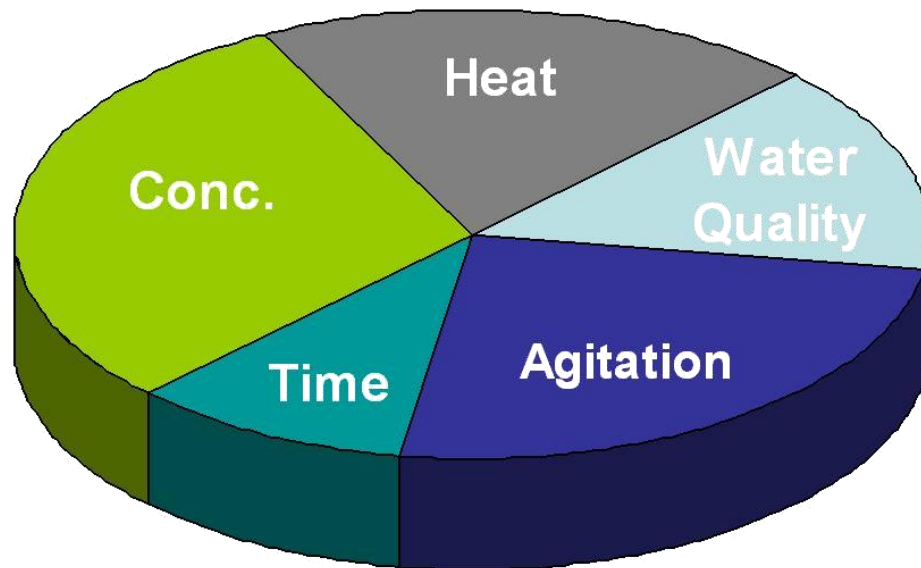
CLEANING METHODS

- ▶ **Spray and Wipe** - Light duty cleaning, leaves little residue.
- ▶ **High Pressure** - Extra heavy duty, not much labor involved.
Not with acids or caustics typically
- ▶ **Foaming** - Allows for long contact time. Can use acids and caustics with care. Not much over spray.
- ▶ **Clean In Place (C.I.P.)** - Re-circulates in closed loop, high agitation with a low foaming product.



WATCH - FIVE VARIABLES THAT AFFECT CLEANING

These are **interdependent** upon each other. If one is removed or changed, one or more of the others must also be changed to compensate.



- Water Quality
- Agitation
- Time
- Concentration
- Heat



Water Quality



▶ Hard Water:

- Water that contains calcium and/or magnesium ions. These metal ions, when present in sufficient amounts, impact the cleaning and foaming characteristics of aqueous cleaning products.

▶ Soft Water:

- Water that contains no or very little magnesium and/or calcium ions.

