Classification of Cleaning Agents

Cleaning agents are classified according to the principle method by which soil or stains are removed from the surface. This will be determined by their composition.
The principle classes are:

- Water
- Detergents
- Abrasives
- Degreasers
- Acid cleaners
- Organic solvents
- Other cleaning agents

1. WATER:

Water is the simplest cleaning agent and some form of dirt will be dissolved by it, but normally it is a poor cleaning agent if used alone. It becomes effective only if used in conjunction with some other agent, e.g. a detergent. Water serves to:

- Carry the cleaning materials to the soil
- Suspend the soil
- Remove the suspended soil from the cleaning site
- Rinse the detergent solution from the surface
- Water has poor power of detergency because:
- It has high surface tension and forms droplets
- It has little wetting power
- It is repelled by oil and grease
- If shaken within oil the emulsion does not prevent the formation of large droplets
- It has low surfactant effect (surface active agent)

2. DETERGENT:

Detergents are those cleaning agents, which contain significant quantities of a group of chemicals known as 'Surfactants' (chemicals that have water and soil attracting properties).
A number of other chemicals are frequently included to produce detergents suitable for a specific use.
A good detergent should –

- Reduce the surface tension of water so that the cleaning solution can penetrate the soil
- Emulsify soil and lift it from the surface
- Be soluble in cold water
- Be effective in hard water and a wide range of temperatures.
- Be hard on the surface that has to be cleaned. Clean quickly and with little agitation.
- Suspend soil in a cleaning solution, and once the soil is removed, to hold it in suspension and not let it redeposit.
- Rinse easily and leave no streaks or scum

- Be economical to user
- Be harmless to the skin and article.
- Be bio-degradable

3. ABRASIVES

The cleaning action of abrasives depends on the presence of fine particles which when rubbed over a soiled hard surface, dislodges the soil, removes tarnishing and surface scratches from meat surfaces. Abrasives can be divided into –
Hard surface cleaners
Classification of Cleaning Agents
Metal polishes.

Abrasives depend on their rubbing or scratching action to clean dirt from hard surfaces. The extent to which they will rub or scratch a surface depends on the nature of the abrasive material and on the size and shape of the particles. The use of abrasive will depend on the surface to be cleaned and the type of dirt to be removed. Whenever possible fine abrasives should be preferred to coarser ones. E.g. glass, sand, emery paper, steel wool, nylon pads, powdered pumice, feldspar, calcite, fine ash, precipitated whiting, filtered chalk, jeweler's rouge (fine abrasive), etc. they are available in natural, liquid, paste or powdered form.

4. DEGREASING AGENTS

They usually consist of strong alkalis, which can dissolve proteins and emulsify and disperse grease and similar substance. They are based on caustic soda or sodium metasilicate. Sodium carbonate (washing soda) can also be used. They are basically used as stain removers and for clearing blocked drains, cleaning ovens and other industrial equipment. Extreme care should be taken in their use as they have high pH.

5. ACIDS AND TOILET CLEANSERS

Cleaning agents with acidic properties react with water-soluble chemical deposits to produce water-soluble salts. Acids dissolve metals and are hence used to remove metal stains such as water stains in baths, hard water deposits around taps, tarnish on silver, copper and brass, Classification of Cleaning Agents etc.
Weak acids include citric acid (lemon juice), acetic acid (vinegar). They are used for removing tarnish from copper and brass and mild water stains in baths.
Strong acids are oxalic acid, phosphoric acid, hydrochloric acid, and sulphuric acid.

6. ALKALIS:

These are used as cleaning agents in the form of liquids and powders. They are particularly useful in the laundry. Very strong alkalis should be used with utmost caution as they are corrosive and toxic. These are called caustic alkalis. Many alkalis act as bleaches.
Caustic soda-based cleaning agents are used to clear blocked drains and to clean ovens and other industrial equipment.
Alkalis and their use:

7.ORGANIC SOLVENTS

These are chemicals that dissolve fat, oil, grease, wax or similar compounds from the different surfaces, e.g. methylated spirit, white spirit (turpentine substitute), carbon tetrachloride. The former two are highly inflammable while carbon tetrachloride is harmful if inhaled, and hence should never be used in a closed area. Many are used for routine stain removal. They are harmful to skin and some surfaces and are fire hazards.

8.POLISHES

They do not necessarily clean but produce shine by providing a smooth surface from which light is reflected evenly. They do this by smoothing out any unevenness on the surface of the article, in many cases by forming a thin layer of wax on the surface, thus giving some protection.

Metal polishes – these remove the tarnish resulting from the attack on the metal by certain compounds and some foodstuffs. They are of two basic types, one for hard metal and other for soft. Either type may be liquid or paste. Liquid polish is a fine abrasive waxed with grease solvent, and sometimes with an acid, e.g. plate powder, precipitated whiting, jeweler's rouge, mentholated spirit, and ammonia. Abrasive when rubbed on the surface of the metal provides friction to remove the tarnish and produce a shine.

Floor polishes –They are of two basic types – Spirit-based, Water-based.

9.DISINFECTANTS AND DE-ODORANTS

Disinfectants, antiseptics, and deodorants are not strictly cleaning agents, but are often used during the cleaning operations. Disinfectants kill bacteria; antiseptics prevent bacterial growth and are frequently diluted disinfectants. The use of disinfectants should not be Classification of Cleaning Agents

STORAGE OF CLEANING AGENTS

Cleaning agents with a longer shelf life are usually bought in bulk because of the reduced costs that accrue from the economics of scale. other agents are bought and replenished periodically. storage of cleaning agents is crucial and the various points to be kept in mind.

- Ensure that the storage racks are strong and with selves. Heavier containers must be kept on
- the bottom shelfs.
- The store should be kept clean and well-ventilated at all times.
- Ensure that the lids are tightly fitted.
- When issuing cleaning agents use appropriate dispensers and measuring apparatus.
- Ensure that no residual deposits of the cleaning agents are left around the rims of the
- containers.
- Avoid spillage, if a spill occurs, clean it up immediately.
- Follow a systematic procedure for rotating stocks.
- Organic solvents, strong reagents, polishes should be kept away from heat sources.
- Check stock regularly, the store should be locked when not in use.

Distribution of Cleaning agents

Issuing of the cleaning agents can be done in the following ways:

- Requisition: each peripheral storage area will have a requisition book with forms in triplicate.

Every time good are required, the person responsible for the storage area will complete the form and sign it. The top copy of this form will then be taken or sent to the central store prior to the collection time, where it will be checked by the supervisor and the items put together for collection by the cleaner. The second copy will go to the housekeeper responsible for cleaning expenditure. The third copy will remain in the book which is returned with fresh supplies.

- Full for empty/ new for old: this system is used extensively in smaller establishments.

Individual cleaners will take empty containers or old dusters, etc. to the central store and will be given a replacement in return.

- Topping up: At a fixed time each day or week, the cleaners will take their containers to the main store to be topped up. This avoids the danger of running out of supplies. In some establishments, cleaners will deposit their bucket of cleaning agents in the main store at the end of each day or regular intervals. These will be replenished ready for collection at the start of the next shift.

Note: These notes have been referred from Hotel Housekeeping book – by Smriti and R. Raghubalan.