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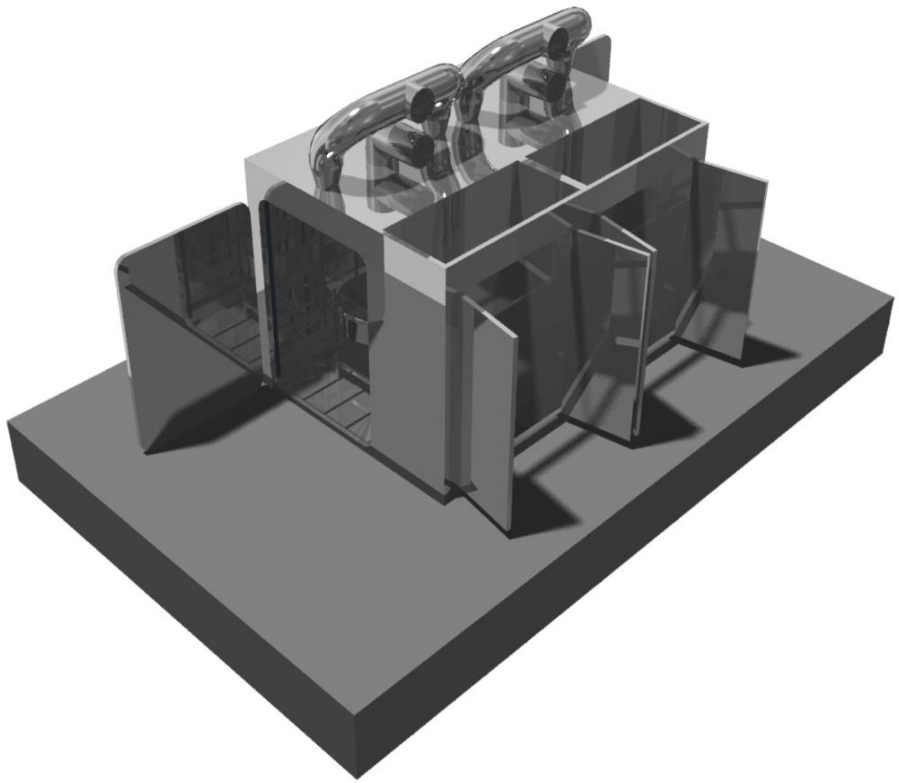
Introduction to IBC Washing



Cleaning and Hygienic Processing Solutions Since 1961

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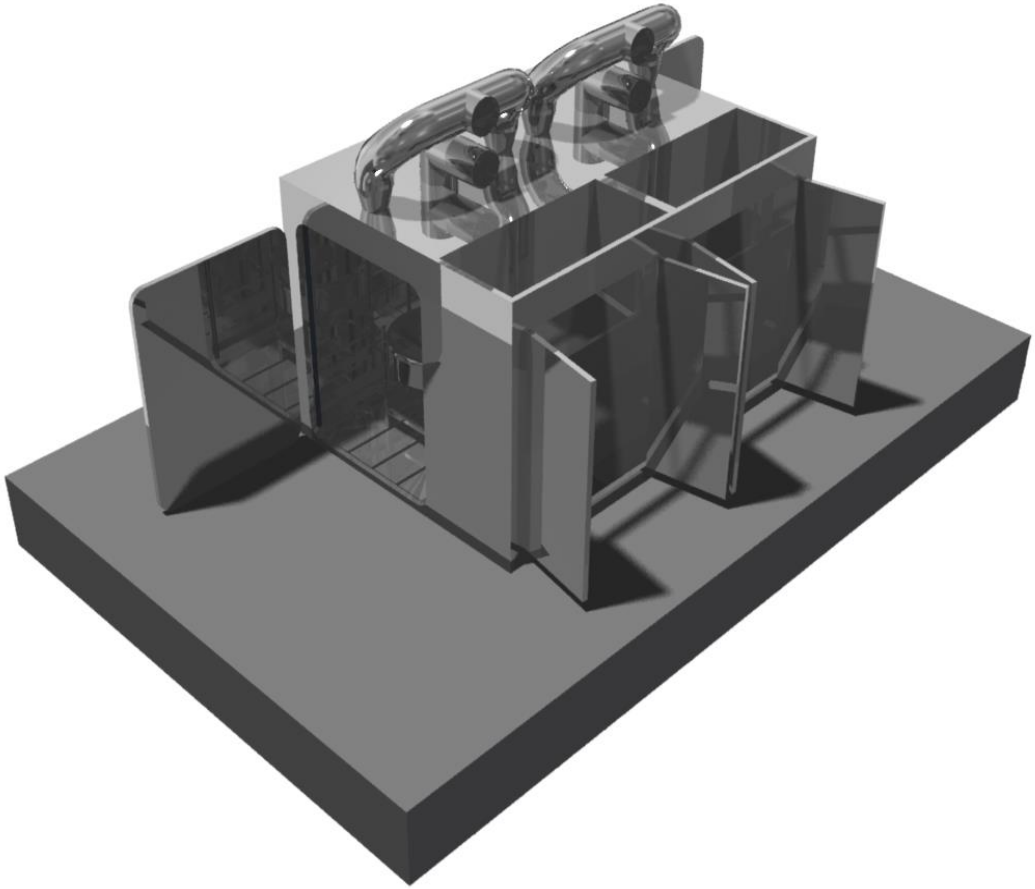
IBCWashBooth™



Validated Internal and External Spray Cleaning and Drying, Full Containment, Single Door or Pass Through, Floor or Pit Mounted, Cone or Split Valve Operation

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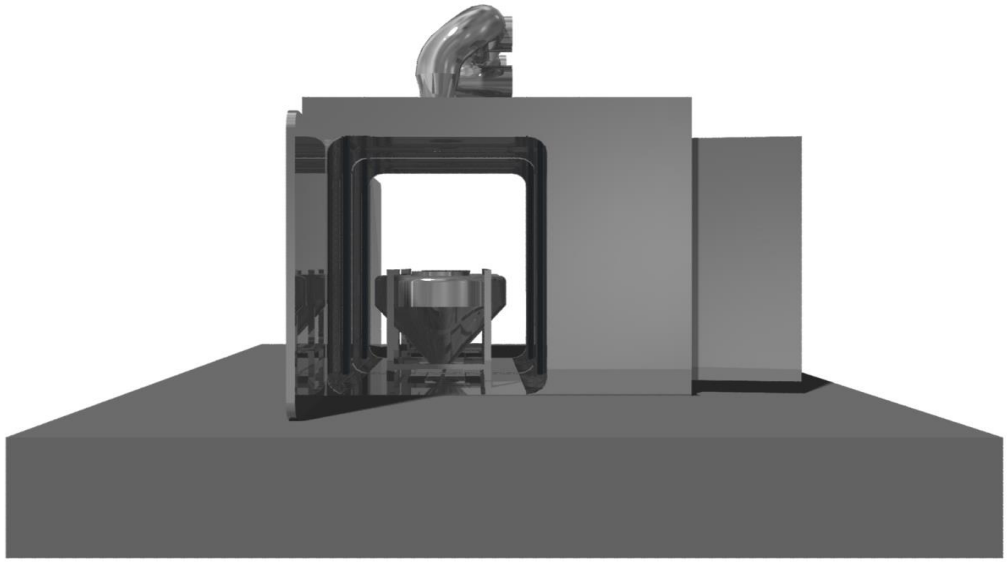
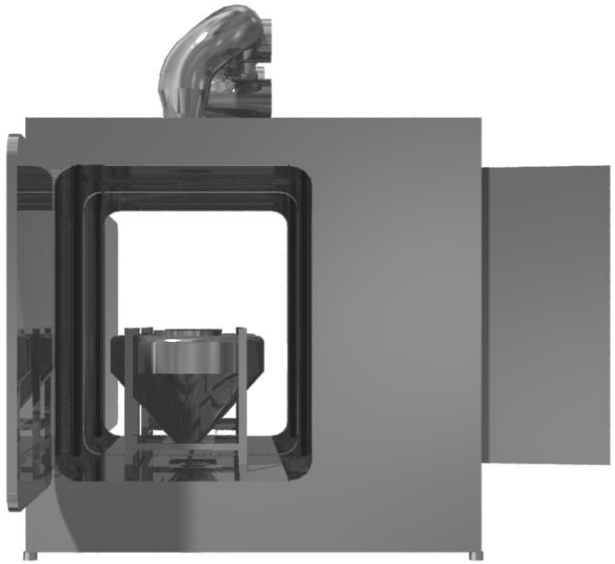
IBCWashBooth™ Loading



Pit Mounted

Internal Floor



Forklift Loaded

Pit Mounted version for floor level loading
or loading with pallet truck/forklift

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IBCWashBooth™ Chamber

Radiused Corners

Crevice Free

ASME BPE
Surface Finish

Free Draining

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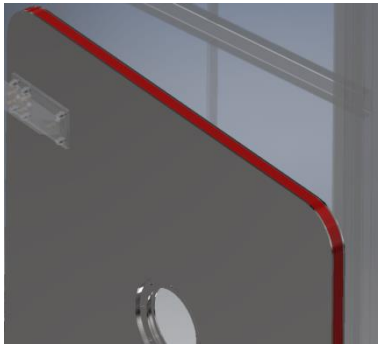
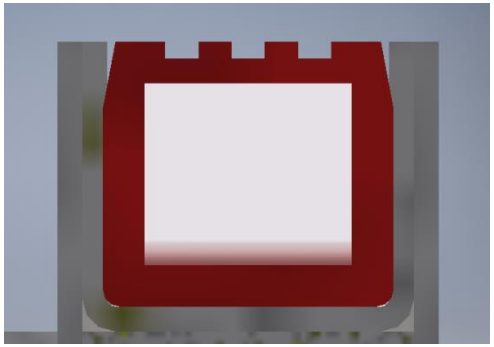
IBCWashBooth™ Doors

Robust Door Construction

Inflatable Door Seal





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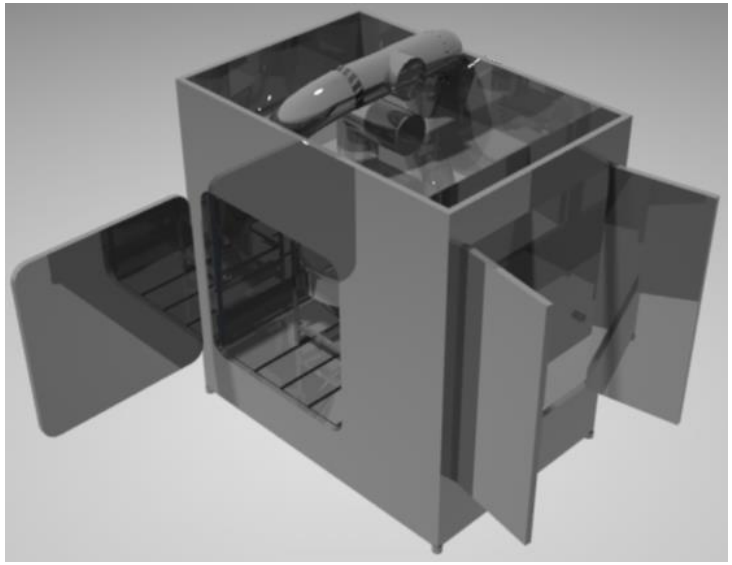
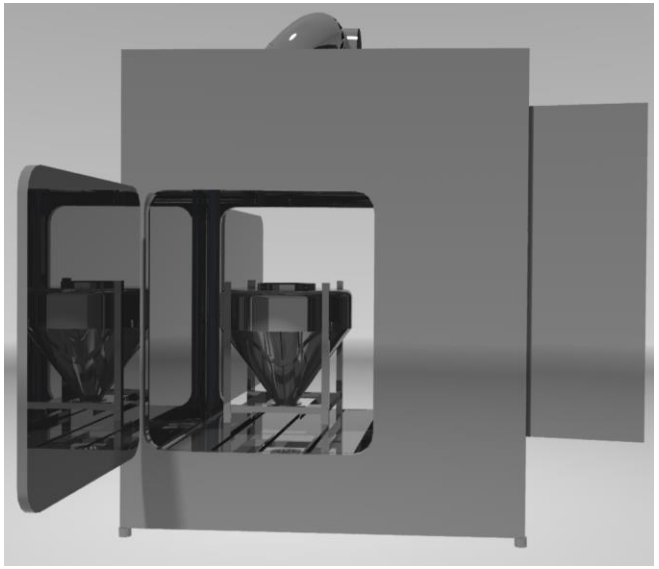
IBCWashBooth™ Doors



Single Door



Two door pass-through

Inflatable Door Seals for full containment
Single Door or Two Door Pass-through Versions

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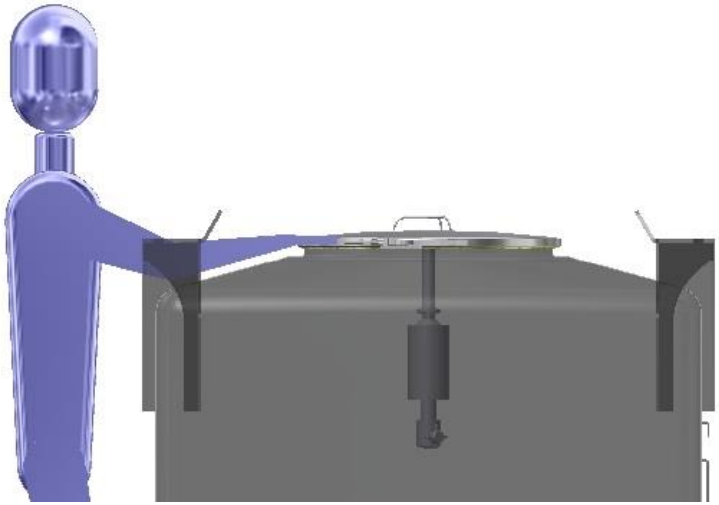
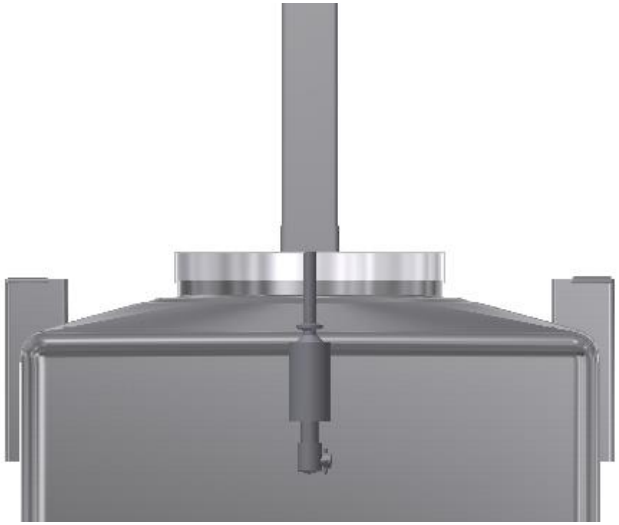
IBCWashBooth™ Internal Spray Fitting

Manually fitted



Automatically raised and lowered



Internal spray device manually or automatically fitted and removed

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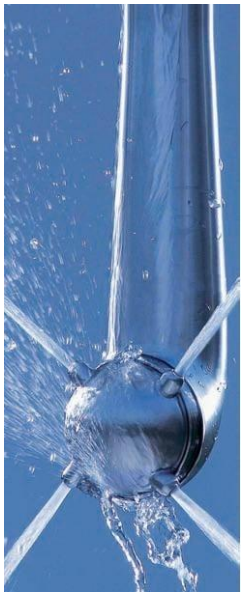
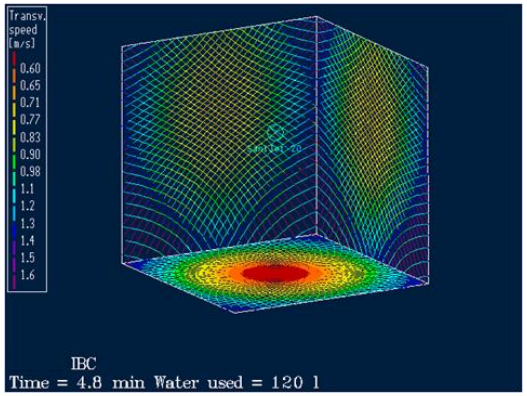
IBCWashBooth™ Internal Spray



Internal IBC Spray



Computer Simulation

Rotary spray jet device with rotation sensor option, 3D modelled to suit IBC and further tested via Riboflavin for validated Cleaning

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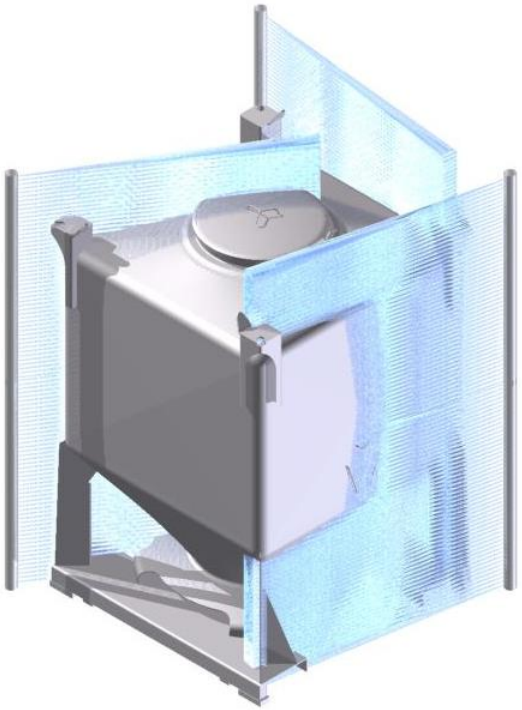
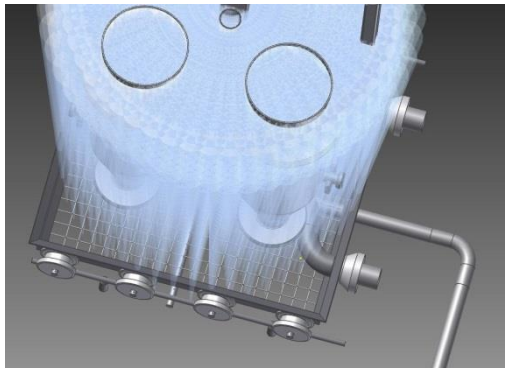
IBCWashBooth™ External Spray



External IBC Spray



External Parts Spray

External sprays specifically designed and 3D modelled to suit IBC and equipment and further tested via Riboflavin, for validated cleaning.

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IBCWashBooth™ IBC Connections

Optional Top and Bottom Split Butterfly Valve

All different outlets catered for including split butterfly valves

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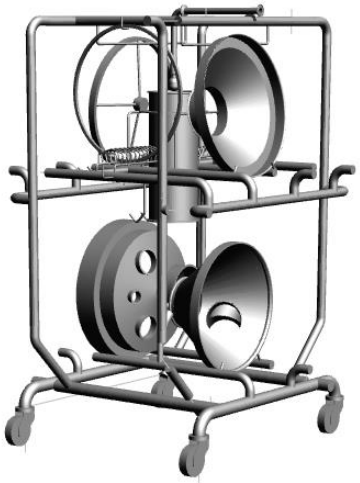
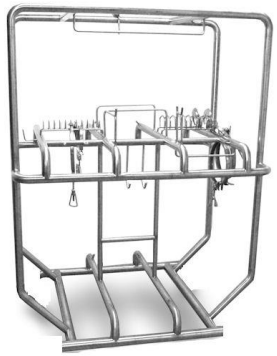
IBCWashBooth™ Parts Washing



Parts Modelled and loaded for Washing

Typical Trolley



Customised trolleys can be used in the IBCWashBooth for Equipment and Parts Washing

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IBCWashBooth™ Pit Mounted

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IBCWashBooth™ Pit Mounted

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IBCWashBooth™ Floor Mounted 1

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IBCWashBooth™ Floor Mounted 2

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Duo IBC WashBooth

DuoWasher™ are front loading or pass-through washers for washing 1 or 2 IBCs simultaneously

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Introduction to Washing

The definition of washing is “to clean with water and, typically, soap or detergent and clean as free from dirt, marks, or stains. The definition of cleaning is “to expunge all residue of prior materials” or more informally “the removal of contaminants”.

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What is Contamination?

Contamination is the presence of particles, chemicals, and other undesirable substances. It can take on many different forms, each of which may requires a specific cleaning mechanism for effective removal. In addition to considering the actual contamination we also need to consider the size, shape, thickness, adherence, positioning and many other factors, which may also have an effect on the selection of cleaning mechanism.

Result of Washing

Washing results in the equipment being chemically clean. This is defined as

"the removal of all residues of soil and all washing agents so that contact with the cleaned surface does not result in physical contamination".

If the equipment being cleaned needs to be micro-biologically clean then an additional process can be carried out. This process is called SIP.

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How Washing Works

The science of washing is based on applying the required amount of energy to the equipment to ensure that it is cleaned. The energy is primarily provided by the solution temperature (thermal energy), the use of detergent or solvent (chemical energy) and the application of kinetic energy for a defined time period.

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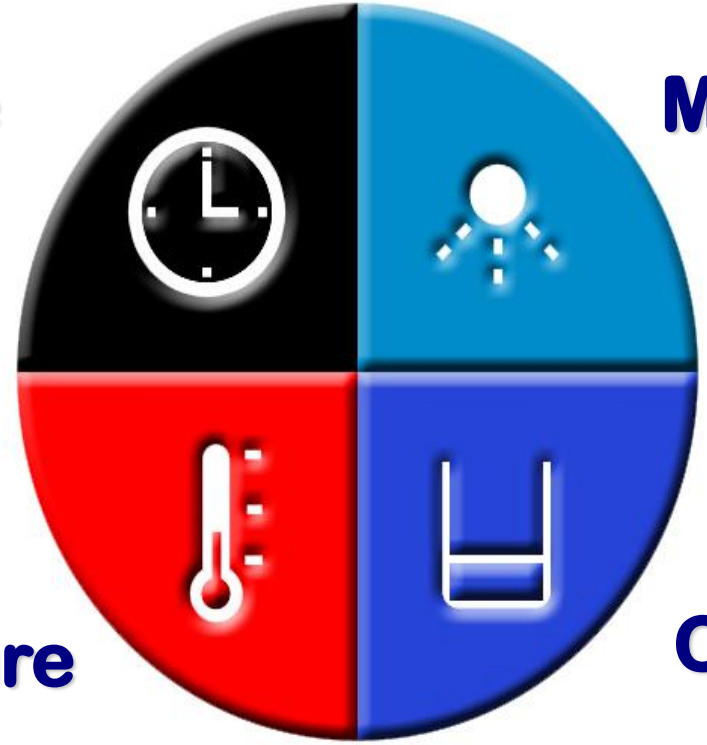
Washing Energy Sources

Time

Mechanical



Temperature

Chemical

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Temperature

Effect on cleaning operation:

Soil	Effect
Proteins	medium
Fats	good
Sugars	good
Salts	good

Note : ***Generally a 10°C temperature increase will improve cleaning efficiency by 50% (above 30°C)***

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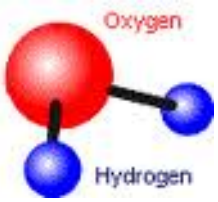
Chemical (Detergent)

Effect on cleaning operation:

Soil	Water	Alkali	Acid
Proteins	poor	good	medium
Fats	poor	good	medium
Sugars	good	--	--
Salts	medium	medium	good

Note : ***required concentrations depend on soil level, processes used, working time, temperature, ….***

Water



- Quality of Water used for aqueous cleaning is critical for performance:
  - Chemical properties (pH, hardness, etc.)
  - Biological properties (bioburden, endotoxins)

Mechanical

Effect on cleaning operation:

- Most washing processes require mechanical energy in addition to the other energy sources.

- The mechanical energy is determined by the type of washer selected, and can include flow and pressure of spray, agitation, turbulation and cavitation.



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Time (Duration)

The duration of each washing step is to be optimised according to the main following parameters :

- Type of Equipment
- Type of Wash Carried Out
- Cleaning solution temperature
- Chemical concentration
- Mechanical Energy Process

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Thank you for your attention
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