

# Caustic soda adding type liquid degreasing agent Plus Clean

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## Introduction

Various stains such as oil, rust, and oxide film adhere to the material (Table 1), and many adhere from the manufacturing and processing processes. When surface treatment is performed, these stains need to be removed, and cleaning according to the characteristics of the material and the type of stain is required. The degreasing step is one of cleaning techniques for creating a clean surface and is a step of removing an oil such as a press oil or a processing oil, a rust preventive oil, or the like, which is mainly applied to a metal material (Table 2). We have a variety of degreasing agents depending on the purpose and application, and this time, the newly developed liquid degreasing agent Plus Clean is introduced.

Table 1: Examples of dirt types<sup>1</sup>

|   | Types of dirt                               | Processing process                          |
|---|---|---|
| 1 | oil (mineral oil, animal and vegetable oil) | pressing, cutting, rolling, rust prevention |
| 2 | rust (metal oxide)                          | heat treatment, welding, natural oxidation  |
| 3 | resin (organic film)                        | painting, coating, etc.                     |
| 4 | metal (iron, etc.)                          | cutting, grinding, polishing, etc.          |
| 5 | organic chemicals                           | process using chemicals                     |
| 6 | soil, sand, etc.                            | (dust)                                      |
| 7 | salts (sodium chloride)                     | (sweat, mist, seawater)                     |
| 8 | water                                       | rain, condensation                          |

Table 2: Purpose of pretreatment

| Purpose      | Process    |               |                       |            |
|--------------|------------|---------------|-----------------------|------------|
|              | Degreasing | Acid pickling | Electrolytic cleaning | Activation |
| Degreasing   | excellent  | average       | good                  | poor       |
| Rust removal | average    | excellent     | good                  | good       |
| Descaling    | poor       | excellent     | good                  | poor       |
| Desmutting   | average    | good          | excellent             | poor       |
| Activation   | poor       | good          | good                  | good       |

## Product Summary

JASCO Plus Clean is a liquid type of degreaser for steel. Excellent workability due to the liquid type and can be used for multiple purposes by combination.

### Features

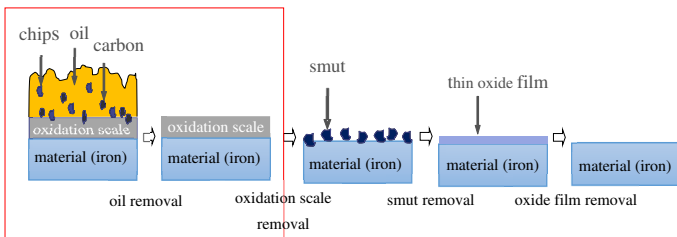
- Liquid degreasing agent of caustic soda adding type
- Concentrated type with low usage
- Oil floatation type degreasing agent
- Can be used for multiple purposes by combination (Table 3)

Table 3: Examples of uses and agent combinations

|   | Use   | Agent combination                             |
|---|---|---|
| 1 | degreasing agent for steel (electrolyzable) | caustic soda + agent A + agent B              |
| 2 | no chelate degreasing agent                 | caustic soda + sodium orthosilicate + agent A |
| 3 | electrolytic cleaning liquid (desmutting)   | caustic soda + agent B                        |
| 4 | degreasing accelerator                      | existing degreasing agent + agent A           |
| 5 | degreasing agent for brass and copper       | sodium orthosilicate + agent A + agent B      |

## Treatment process

The degreasing process is a step of removing an oil such as a press oil or a processing oil, a rust preventive oil, or the like, which is mainly applied to a metallic material (Table 2, Figure 1). JASCO Plus Clean does not require any special processes or equipment and can be used in facilities like conventional degreasing agents.



degreasing process

Figure 1: Example of pretreatment process

### Mechanisms

A common alkali degreasing agent is composed of an alkali builder, a chelating agent, a surfactant, and the like (Table 4).

The degreasing mechanism of Plus Clean is similar to the mechanism of general alkali degreasing, causes surfactants to adsorb and penetrate the interface between oil and metal surface, and pulls the oil from the metal surface by rolling-up effect (Figure 2). It is a mechanism to prevent reattachment by the use emulsification of surfactants. <sup>2</sup>

Table 4: Components and effects of degreasing agents

| Structural component  | Effect   |
|---|--|
| Alkaline builder<br>(Caustic alkali, carbonate, silicate, etc.) | Saponification of fatty acid esters                      |
| Chelating agent   | Softening action of hard water, dispersion stabilization |
| Surfactant  | Surfactant action such as dispersion action              |
| Other   | Defoaming, etc.  |

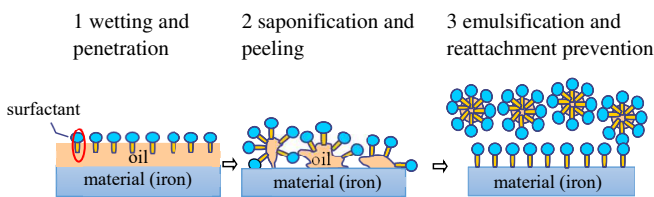


Figure 2: Degreasing mechanism

### In closing

JASCO Plus Clean is a new liquid type degreaser that is mainly used domestically and abroad as a degreaser for steel.

Due to the oil separation type, the emulsified oil is brought into the next process less and has a long life. In addition, since it is possible to provide characteristics corresponding to line conditions by combination of agents, it is possible to reduce the number of chemical points in stock, which is

effective for improving manageability and reducing cost.

### References

1: Fujio Mamiya; kinnzokuseizyougizyutu, 9-11 (1975)  
 2: Takumi Kozaki; *J. Surf. Finish. Soc. Jpn.* Vol. 69 No. 9 (2018)