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CLEANER 104

DESCRIPTION:

Cleaner 104 is a non-flammable, non-fuming or hydrochloric type cleaner used for removal of oil, grease, organic coatings and oxides from most metals. **Cleaner 104** can be used hot or cold and can be applied by dipping, brushing, swabbing or spraying. It contains inhibitors, which make it safe for cleaning iron and steel and copper base alloys. It is also effective for cleaning and light etching zinc base die castings aluminum and galvanized steel.

Cleaner 104 has a phosphoric acid content of 50% by weight. This acid strength coupled with an effective blend of emulsifiers, solvents and penetrates make it an ideal single-step cleaner and Deoxidizer for most metals. This material will effectively dissolve rust; however, it is not designed to remove heavy black oxide scales from steel. It leaves a light phosphate film on steel and zinc, which is an excellent base for painting.

APPLICATION:

Concentration:	1 part **Cleaner 104** to 2 parts of water
Temperature:	Room temperature to 180° Fahrenheit.

This product is simply diluted in the ratio of one part **Cleaner 104** to two parts water depending on the type of job to be done. For removal of heavy smut and rust or for fast etching of aluminum, a dilution of one part **Cleaner 104** and two parts of water is recommended.

TEMPERATURE:

In most cases, the **Cleaner 104** can be used cold. However, cleaning and oxide removal will be facilitated if the solution is heated to temperatures in the range of 130° to 150° Fahrenheit. **Cleaner 104** solution should not be heated above 180° F because undue loss of solvents may occur above this temperature. 150° F is a practical limitation for most all applications. Aluminum can be etched clean from room temperature to 150° F. Zinc is best cleaned at room temperature.

OPERATION:

Dip your piece (which can be treated in a tank) and keep it immersed in the **Cleaner 104** solution for a period of time ranging from a few seconds to several minutes depending upon the severity of contamination. Once you remove the piece from the solution, use a scotch-brite pad or steel wool to scrub & further clean the piece. Some effort on the part of the user is necessary to remove any oxidation and/or build up. After treatment, the piece should be rinsed in clean running water. Run-off water will contain some **Cleaner 104** & should be disposed of as per your local municipalities rules & laws.

For application to large objects such as frames and cabinets the diluted mixture, at room temperature, is applied by sponge, brush, or cloth whereby the surface is thoroughly wiped with the cleaning solution. In cases of severely rusted surfaces, several applications may be required. Again, scrubbing with a scotch-brite pad and/or steel wool will facilitate the cleaning. After this, the piece should be thoroughly rinsed with water. It is important that the metal parts not be allowed to stand for more than a few minutes after **Cleaner 104** application & before rinsing is done. Pieces allowed to stand for too long before rinsing of the cleaner may cause stains like phosphate coatings to form.

EQUIPMENT:

Suitable containers are plastic or rubber lined steel tanks. Stainless steel is usually satisfactory but pit corrosion may occur near welds. Heating coils should be made of lead, ventilation is recommended for the cleaning of aluminum and zinc base die castings since there is an evolution of hydrogen gas causing and acid spray. There is only slight gassing when steel is cleaned and no gassing when copper base alloys are being treated.

CONTROL:

The concentration of **Cleaner 104** solution can be controlled by titrating with a sodium hydroxide solution standardized against a C**leaner 104** solution of known strength. Phenolphthalein should be used as an indicator.

CAUTION:

Cleaner 104 contains phosphoric acid; therefore, the worker should protect his eyes and skin by means of goggles and protective clothing. In case of contact, flush skin or eyes with plenty of water for at least 15 minutes. For the eyes, get immediate medical attention. **Cleaner 104** has no fire or flash point.