



1000 Western Drive
 Brunswick, OH 44212
 PHONE: 330/225-3200
 FAX: 330/225-1499
 www.columbiachemical.com

PICKLE PAL™ PLUS

Inhibitor/Cleaning Aid For HCl And H₂SO₄ Pickle Baths
TECHNICAL DATA
 2-01-02

PICKLE PAL™ PLUS

NON-HAZARDOUS INHIBITOR/CLEANING AID FOR HYDROCHLORIC ACID AND SULFURIC ACID PICKLE BATHS

- | | |
|-----------------|--|
| PICKLE PAL PLUS | inhibits the attack of the acid on the steel substrate leading to bright, clean parts which maximizes plating quality. |
| PICKLE PAL PLUS | eliminates smut formation on high carbon or carbo-nitrided steel and improves pickle's ability to remove scale. |
| PICKLE PAL PLUS | eliminates blistering on heat-treated steel by conditioning the substrate surface. |
| PICKLE PAL PLUS | helps to solubilize oils dragged into the pickle as well as any oils remaining on the parts after the cleaning stages. |
| PICKLE PAL PLUS | reduces fumes and spray from pickle tanks. |
| PICKLE PAL PLUS | reduces the possibility of hydrogen embrittlement from the pickling process. |
| PICKLE PAL PLUS | greatly reduces soluble iron build-up in the pickle, extending pickle life and significantly minimizing iron contamination of the plating baths. |
| PICKLE PAL PLUS | is compatible with plating baths and waste treatment processes. |

SOLUTION MAKEUP

PICKLE PAL PLUS is easy to use. Simply add 0.25 to 2% by volume to the hydrochloric acid (muriatic acid) or sulfuric acid pickle tank.

SOLUTION MAINTENANCE

Each time acid is added to the pickle tank, add the equivalent ratio of PICKLE PAL PLUS as was used for the initial pickle makeup.

Example:

Pickle bath makeup for a 200 gallon (757 liters) hydrochloric acid pickle tank

Concentrated Hydrochloric Acid	60 gallons (227 liters)
PICKLE PAL PLUS	2 gallons (7.5 liters)

Maintenance Addition

Concentrated Hydrochloric Acid	15 gallons (57 liters)
PICKLE PAL PLUS	½ gallon (1.9 liters)

RECOMMENDATIONS FOR HYDROCHLORIC PICKLE BATHS

	<u>RANGE</u>	<u>OPTIMUM</u>
Concentrated Hydrochloric Acid:	20 to 50%	30%
PICKLE PAL PLUS:	0.25 to 2%	1%
Immersion Time:	2 to 10 min.	4 min.
Temperature:	60 to 85° F (15° - 28° C)	75° F (24° C)

NOTES: For weaker pickle you may use lower concentrations of PICKLE PAL PLUS.

For high carbon, heat treated, or highly oiled steels you may use higher concentrations of PICKLE PAL PLUS.

HANDLING & STORAGE

As with any chemical, use protective goggles, rubber gloves and good ventilation. For eye contact, flush with water for at least 15 minutes and see a physician. For skin contact, wash area with soap and water. Remove contaminated clothing at once. Avoid inhalation.

Store away from oxidizing agents.

Review MSDS before using.

FREEZABILITY: As with most chemical products, it is preferable that freezing be avoided. However if freezing should occur during transportation or storage, directions for handling the products covered in this technical data sheet are as follows:

If PICKLE PAL PLUS freezes, simply allow the container to completely thaw and bring to room temperature of 70-75F/ 21-24C. Thoroughly mix to bring back to original condition.

NON-WARRANTY

The data in this bulletin is believed by Columbia Chemical Corp. to be accurate, true, and complete. Since, however final methods of use of this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assure any responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.