



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

PICKLE PAL® PLUS

TECHNICAL DATA
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PICKLE PAL® PLUS

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

PICKLE PAL® PLUS	maximizes plating quality by inhibiting the attack of the acid on the steel substrate leading to bright, clean parts
PICKLE PAL® PLUS	improves pickle's ability to remove scale and eliminate smut formation on high carbon or carbon-nitrided steel.
PICKLE PAL® PLUS	eliminates blistering on heat-treated steel by conditioning the substrate surface.
PICKLE PAL® PLUS	reduces fumes and sprays from pickle tanks as well as 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	helps to solubilize oils dragged into the pickle as well as any oils remaining on the parts after the cleaning stages.
PICKLE PAL® PLUS	is compatible with plating baths and waste treatment processes.

SOLUTION MAKEUP

	<u>RANGE</u>	<u>OPTIMUM</u>
PICKLE PAL® PLUS	0.25 - 2% by volume	1% by volume
Concentrated Hydrochloric Acid	20 - 50%	30%
Immersion Time	2 - 10 min.	4 min.
Temperature	60 - 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.

MAINTENANCE ADDITIONS

Concentrated Hydrochloric Acid 15 gallons (57 liters)

PICKLE PAL® PLUS ½ gallon (1.9 liters)

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.

HANDLING & STORAGE

Columbia Chemical recommends referring to the specific product Safety Data Sheets for safety, handling, and storage precautions.

NON-WARRANTY

The data contained 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 assume responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.