



# SUPERIOR NO. 461



## ZINC-FREE ORGANIC ACID TINNING FLUX

- Continuous Tinning Flux for Copper Wire and Strip
- Excellent Rapid Oxide Removal Properties
- Zinc-Free, Chloride Activated, Organic Acid Formulation
- Designed for High Speed Tinning of Fine Gage Copper Wire
- Does Complete Tinning of Strip or Wire Surfaces with a Single Pass
- Completely Water-based Formulation, No Solvents and No Alcohols

### DESCRIPTION

**Superior No. 461** is a concentrated zinc-free, halide-activated, organic acid type flux for high speed continuous tinning of copper wire and strip. As a concentrate to be diluted, **Superior No. 461** results in lower shipping costs compared to other fluxes. **Superior No. 461** is less corrosive on equipment than zinc-chloride fluxes and leaves minimal, zinc-free residue on the tinning pot after tinning.

### APPLICATIONS

**Superior No. 461** was formulated for the high speed tinning of copper wire and strip. Its rapid activity allows it to work on extremely fine gage wire that typically is tinned at extremely high speeds. Normal flux application such as total immersion of the copper wire or strip is recommended. Non-continuous applications will work by adding flux by part immersion or by brush.

### DIRECTIONS

- ① **Superior No. 461** is normally applied at room temperature. It can be diluted up to ten parts water to one part flux by volume.
- ② For continuous copper wire or strip tinning a slight excess of flux (as evidenced by slight bubbling on the molten tin pot as the tinning occurs) is usually viewed as desirable.
- ③ Post-tinning residues are minimal in a continuous tinning application and therefore usually do not need to be removed.
- ④ In a non-continuous tinning operation, post-soldering residues are water-soluble and can normally be removed, if necessary, in a hot water wash of 60-80 °C/140-176 °F.

*Superior manufactures quality fluxes. Our business is solving problems.*



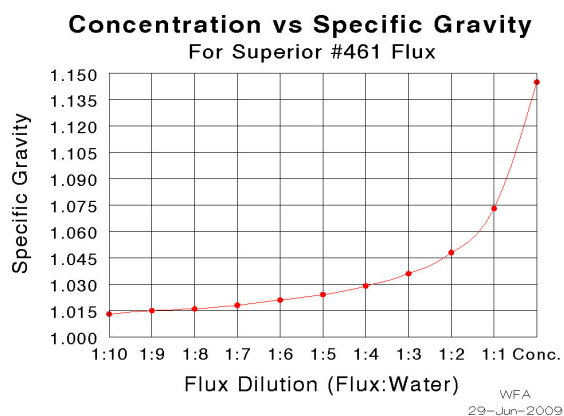
## PHYSICAL PROPERTIES

Appearance	Clear, Colorless to Yellow
Specific Gravity	1.145 ± 0.010 @ 20-25°C/68-77°F
Density	9.6 Lbs./Gallon @ 20-25°C/68-77°F
pH	1.10 ± 0.50 @ 20-25°C/68-77°F
Surface Tension	32 dynes/cm minimum
Recommended Soldering Range	260-427°C/500-800°F
Odor	Mild
Flash Point	None
Freezing Point	None

**This Product is RoHS Compliant**

## PREPARATION and HANDLING

**Superior No. 461** is shipped as a concentrate to be diluted of up to ten parts water to one part flux by volume. For greater strength, lower dilution ratios should be used. Mix well when diluting and check specific gravity with a hydrometer before use. The solution will not separate on standing.



## SAFETY PRECAUTIONS

Since **Superior No. 461** attacks many metals to some extent, it is recommended that polyethylene, PVC or fiberglass reinforced polyester containers be used. Any machinery or construction materials, which might be exposed to direct contact with the flux, should also be able to withstand acids.

This product, during handling or use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

**Superior No. 461** has a two (2) year shelf life.

The information contained herein is based on data considered to be accurate and is intended for use by persons having technical skills at their own discretion and risk. Since conditions of use are outside of Superior Flux & Mfg. Co.'s control, we cannot assume liability for results obtained or damage incurred due to misuse, nor can we assume customer liability.

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& Mfg. Co.**

6615 Parkland Blvd. • Cleveland, OH 44139 • Phone: 440-349-3000 • Fax:  
440-349-3003 www.superiorflux.com • e-mail: info@superiorflux.com