

PC-Grade Stabilized Peptone

Liquid Peptone for Standard Fluoborate Based Solder Plating

Product Description

PC-Grade Stabilized Peptone (PSP) is a purified, conditioned, and refined liquid Peptone for use in tin/lead fluoborate plating baths. PSP acts to improve throwing power, increase limiting current density, and refine grain structure during conventional 60/40 solder plating. It may be added on an ampere hour basis or controlled by Hull cell test.

Performance Features

- PSP is stabilized to improve shelf life.
- PSP is purified, reducing the odor and filterable solids present in many Peptone products.
- PSP can be added “over-the-side” to baths currently using conventional liquid Peptone.

Physical Specifications

Physical State	Liquid
Appearance	Turbid Brown Emulsion
Stability	Do Not Freeze
Specific Gravity	1.1
pH	Neutral

Equipment Requirements

Tanks: PVC, Polyethylene, Polypropylene, Koroseal, Or Tanks Lined With These Materials.
Heating Or Cooling Coils: Teflon Is Recommended. Glass Or Quartz Are Not Suitable.
Racks: Plastisol Coated Monel. Stainless Steel Is Not Recommended. Titanium Must Not Be Used.
Filters: Polypropylene, Hynel, Or Dynel (5-10 Micron). Leach In Hot Water Before Use.
Anode Bags: Polypropylene, Hynel, Or Dynel (Cfm Rating Of 50-60). Leach In Hot Water Before Use.
Anode Hooks: Plastisol Coated Monel. Stainless Steel Is Not Recommended. Titanium Must Not Be Used.
Anodes: 60/40 Or 63/37 Extruded. Seacole Recommends “Waffle” Anodes Manufactured By Aim Products. The “Waffle” Anode Shape Improves Current Distribution, Eliminates Anode “Sparring”, And Improves Bath Efficiency. Contact Seacole For More Information Or A Demonstration Of “Waffle” Anode Technology.

Note: The equipment recommendations below are for a working fluoborate based plating bath and are not related to any specific compatibility with PSP.

Technical Data Sheet

Product Make-Up

When preparing a new bath or making additions to an existing solder bath, it is very important to use quality chemicals adhering to published specifications. Seacole recommends fluoborate chemistries meeting or exceeding the specifications below. Other considerations include water quality (only deionized water is recommended) and anode quality (extruded anodes are recommended to assure a fine grain structure of the anode and uniform corrosion of the anode as it deplates).

A typical bath composition for plating a 60/40 tin/lead deposit is as follows:

Parameter	Range	Optimum
Tin (oz/gal as metal)	2.0 - 3.5	2.5
Lead (oz/gal as metal)	1.3 - 2.3	1.7
Fluoboric Acid (oz/gal)	20 - 32	28
Boric Acid (oz/gal)	1.5 - Saturation	---
PC-Grade Stabilized Peptone (% v/v)	2 - 3	---

To prepare a 100 gallon bath:

1. To a clean tank, add 50 gallons of hot deionized water.
2. Add 10 pounds of SOLDER/Plate GR-4 and mix until dissolved.
3. Add 32 gallons of FLUOBORIC ACID, 48% and mix until uniform.
4. Add 2.6 gallons of LEAD FLUOBORATE, 50% and mix gently until uniform.
5. Add 5.8 gallons of STANNOUS (TIN II) FLUOBORATE, 50% and mix gently until uniform.
6. Add 2 gallons of PC-Grade Stabilized Peptone and mix gently until uniform.
7. Dilute to volume with deionized water (approximately 7 gallons) and gently mix until uniform.

Depending upon the quality of the deionized water, a new bath may appear slightly cloudy upon make-up. This can be due to the precipitation of lead sulfate and/or stannic oxide. If this is observed, filter the bath through 5 - 10 micron polypropylene filters until clear. Be sure to hot water leach the filters prior to beginning filtration.

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Specification	Fluoboric Acid	Tin (Stannous) Fluoborate	Lead Fluoborate
% By Weight	48	50	50
Oz/Gal As Fluoborate	88.5	107	119
G/L As Fluoborate	663	800	885
Oz/Gal As Metal	---	44	65
G/L As Metal	---	325	480
Color	Water White	Water White	Water White
Specific Gravity	1.38	1.60	1.71
Pounds/Gal	11.5	13.3	14.4
Boric Acid %	0.5 - 1.5	< 3.0	1.5 - 6.0
Fluoboric Acid %	---	< 6.0	< 5.0
Chloride ppm	< 3	< 3	< 3
Sulfate ppm	< 50	--	--
Copper ppm	< 1	< 2	< 2
Iron ppm	< 10	< 40	< 10
Nickel ppm	< 2	--	--
Zinc ppm	< 1	< 1	< 3

Operating Parameters

PSP can be used in conventional, modified, or high throw tin/lead fluoborate plating solutions. In most cases those installations presently using conventional liquid Peptone can simply begin using PSP. For optimum results, it is best to carbon treat and then add 2% by volume PSP.

Additions of PSP can be made based upon Hull cell testing or added at a rate of 1 gallon for every 10,000 amp hours.

Temperature	70 - 85°F (75°F Optimum)
Agitation	Mild Mechanical Via Cathode Rod
Cathode Current Density	20 - 30 ASF
Time	@ 550 U" In 10 Minutes At 25 ASF
Filtration	Continuous (5 - 10 Micron pp)
Anode/Cathode Ratio	1:1 - 2:1
Ventilation	Recommended

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Control and Replenishment

Necessary additions of PSP can be determined by Hull cell testing. Employ a brass Hull cell cathode and 60/40 or 63/37 solder anode, magnetic stir bar agitation, and plate the Hull cell at 2 amps for five minutes. (For high throw bath formulations, operate the Hull cell at 1 amp for 10 minutes.) The deposit should be smooth and uniform in color, fine grained, and exhibit not high current density treeing. You will notice the high current density area may be slightly rougher and darker in color. As PSP is consumed, high current density treeing will become evident.

When making additions to the Hull cell, PSP should be added at increments no greater than 0.5% by volume until the high current density treeing is no longer observed.

Safety and Handling

Read and understand this products MSDS before handling.

Waste Treatment

Individual users should verify the nature of spent solutions to assure compliance with local, state, and federal regulations. Contact Seacole for specific details and/or further waste treatment recommendations.

Ordering Information

PC-Grade Stabilized Peptone is available in 1 gallon jugs and 5 gallon pails.

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