

INSTRUCTION FOR MEASURING SATURATION IN SLA RESIN REMOVAL SOLUTION

Background

1. PostProcess SLA resin removal detergents PLM-402-SUB (formerly PG1.2) and PLM-403-SUB (formerly PG1.3) are used in PostProcess SVC equipment to remove resin from 3D printed parts. The specific gravity of both detergents new, without any resin in the solution, is 0.890 g / mL +/- 0.015.

As resin is removed from printed parts and dissolved into the detergent the specific gravity of the detergent increases. PostProcess has found that the detergent becomes saturated with resin removed from parts at 0.970 to 0.980 g / mL. This represents about 40% to 45% resin concentration in the detergent.

2. A hydrometer is an instrument used to measure the density or specific gravity of a liquid as compared to that of water. Hydrometers usually consist of a calibrated glass tube ending in a weighted glass sphere that makes the tube stand upright when placed in a liquid. The lower the density of the liquid, the deeper the tube sinks.

PostProcess P/N MIS0047 Hydrometer is to be used to measure the saturation of our SLA resin removal solution.

3. Required Personal Protective Equipment (PPE):
 - a. Hand protection - appropriate protective gloves
 - b. Eye protection that complies with ANSI/ISEA Z87.1-2015
 - c. Body protection - lab smock or lab coat
4. Other Recommended Equipment
 - a. Emergency Safety Shower and Emergency Eye Wash
 - b. Chemical Spill Kit
 - c. First Aid Kit
 - d. Cloth Wipes (Paper Towels)

Process

Checking Saturation of PPT Detergent

The goal is to check the saturation of the detergent and change out a saturated detergent before it becomes oversaturated with resin that could result in damage to the equipment and/or parts.

1. Make sure detergent is well mixed before checking saturation level.
 - 1.1. Prior to testing the detergent with the hydrometer, turn on the equipment and run for 5 minutes to ensure the detergent is well mixed.
2. Testing the SLA resin removal detergent.
 - 2.1. Turn off the equipment.
 - 2.2. Test saturation at 70°F (21.1°C) to 80°F (26.7°C).
 - 2.3. Put the PostProcess Hydrometer P/N MIS0047 into the detergent.
 - 2.4. The hydrometer will sink into a new or slightly saturated detergent, specific gravity reading 0.890 g / mL to 0.910 g / mL.
 - 2.5. The hydrometer will raise higher out of the liquid solution, specific gravity reading 0.920 g / mL to 0.960 g / mL.

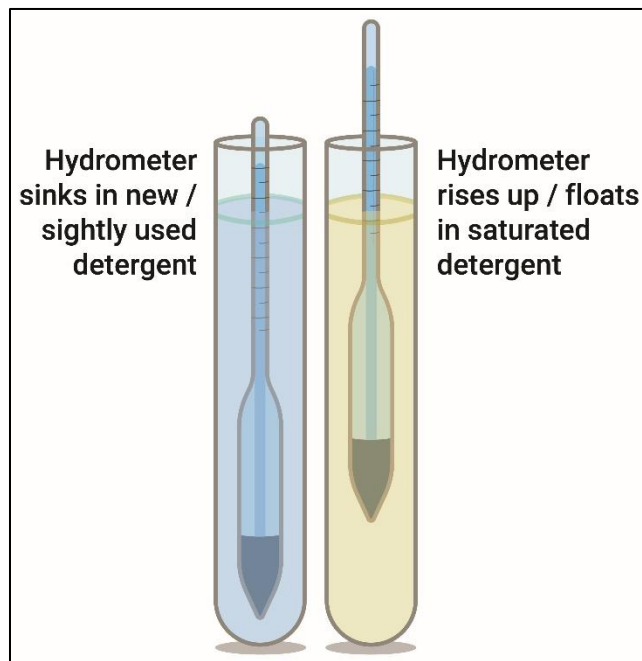


FIGURE 01 - Hydrometer in the Detergent

- 2.6. When a hydrometer reading of 0.970 to 0.980 g / mL is observed the detergent is saturated and it is time to change the detergent.
- 2.7. After checking the detergent saturation level remove the Hydrometer from the tank / detergent. Carefully wipe down the hydrometer to remove detergent and resin. The Hydrometer should additionally be cleaned with new detergent or isopropyl alcohol (IPA) to maintain cleanliness of the hydrometer.
- 2.8. Do not run the equipment with the hydrometer in the tank.
- 2.9. Table 01 (below) provides reference saturation levels for PLM- 402- SUB and PLM- 403- SUB. The amount of resin in solution by weight and saturation levels may vary slightly with different types of resins.
- 2.10. If the hydrometer is broken and needs replacement, please contact PostProcess Technologies to order a replacement. Order Part Number MIS0047 Hydrometer.

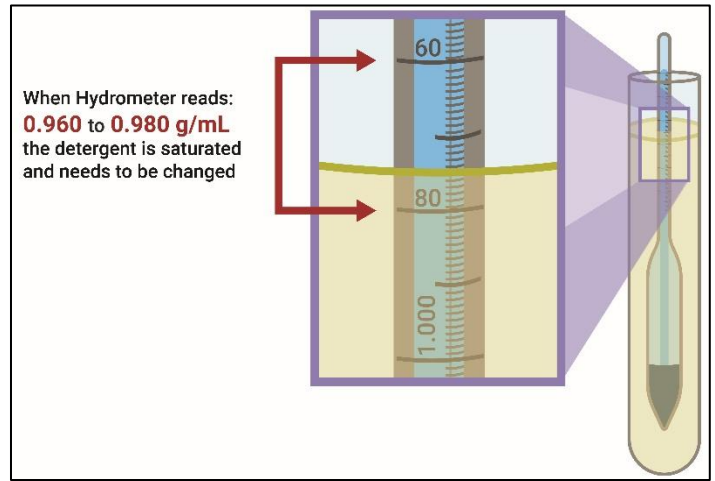


FIGURE 02 - Reading the Hydrometer when Saturated

TABLE 01 - Reference Saturation Levels		
Resin in Solution by Weight +/- 2%	Specific Gravity PLM- 402- SUB and PLM- 403- SUB	% Saturation +/- 2%
0% Resin	0.890 g / mL	0%
10% Resin	0.905 g / mL	25%
20% Resin	0.924 g / mL	50%
30% Resin	0.943 g / mL	75%
40% Resin	0.962 g / mL	92%
42% Resin	0.980 g / mL	100%

DISCLAIMER

Please refer to the Safety Data Sheet (SDS) for complete information on Storage and Handling, Toxicological Properties, Personal Protection, First Aid, Spill and Leak Procedures, and Waste Disposal. To order an SDS, please contact PostProcess Technologies. Before using or handling this product, the SDS should be thoroughly reviewed.

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