



Driving Solvent Efficiency in Additive Manufacturing

How an additive equipment manufacturer recovered 96% of IPA with SolvTrue™ solvent recycling technology

As demand for sustainable operations increases, manufacturers in the additive industry are under pressure to reduce waste and improve chemical handling processes—especially when it comes to high-use solvents like Isopropyl Alcohol (IPA). For one leading additive equipment manufacturer, that meant rethinking how they managed the IPA used during internal part-washing processes following 3D/SLA printing—particularly in support of internal testing and customer training.

They needed a solution that could reclaim large volumes of solvent efficiently, promoting effective workflow and support to daily operations while promoting performance. The manufacturer partnered with CBG Biotech to test the capabilities of the SolvTrue™ S700 Solvent Recycler for IPA after use in their process.

Their goals were clear:

- Improve IPA reuse to reduce solvent purchases, waste reduction and disposal needs
- Evaluate the effectiveness of SolvTrue™ in recovering high-quality solvent
- Maintain cleaning performance with high-concentration IPA and workflow continuity
- Support sustainability and cost-efficiency efforts internally and for customers

Scope: To meet these goals, the test focused on evaluating the SolvTrue™ S700's ability to reclaim high-quality IPA from part-washing applications following 3D/SLA printing. The objective was to determine whether the recycler could effectively recover IPA or reuse in their application, while maintaining solvent quality and supporting ongoing operational needs.

Process and Findings

To evaluate performance, the CBG Biotech team ran a controlled test with customers' used and dirty IPA using the following parameters:

CBG Biotech processed the used solvent provided by the additive equipment manufacturer using the standard automated IP settings on the SolvTrue™ S700 Production Recycler, configured for a long draw. The run lasted approximately three and a half hours, with the supplied volume charged directly into the system's vessel. Four containers of used IPA were processed in total with a net waste volume of approximately 14.2 kilograms.

- **Solvent:** Isopropyl Alcohol (IPA)
- **Contaminants:** Resin Blend (Castable Wax, Clear, Durable, Rigid and White Resins)
- **Equipment Used:** SolvTrue™ S700, 220V
- **Cycle Time:** ~3.5 hours
- **Accessories:** Tank liner and mist deflector

Findings: Recovery began approximately one hour into the cycle and continued steadily until completion. The SolvTrue™ S700 used for this test was configured with the standard IPA program and set to the long draw mode to maximize yield. The full cycle duration was approximately three and a half hours.

USED / DIRTY IPA

The breakdown:

- **Input waste weight:** 29.6 lb.
- **Recovered IPA:** 27.2 lb.
- **Waste remaining:** 1.6 lb.
- **Net recovery rate:** 96.2%
- **Recovery rate per hour:** ~0.8 gal/hr.
- **Estimated concentration:** ~99% IPA

Specific gravity was measured at 0.779 g/mL (compared to 0.781 for 100% IPA), confirming high-concentration recovery suitable for reuse.

Visual results from the solvent recovery test

Visual documentation supports the conclusion of a high recovery rate and solvent concentration.

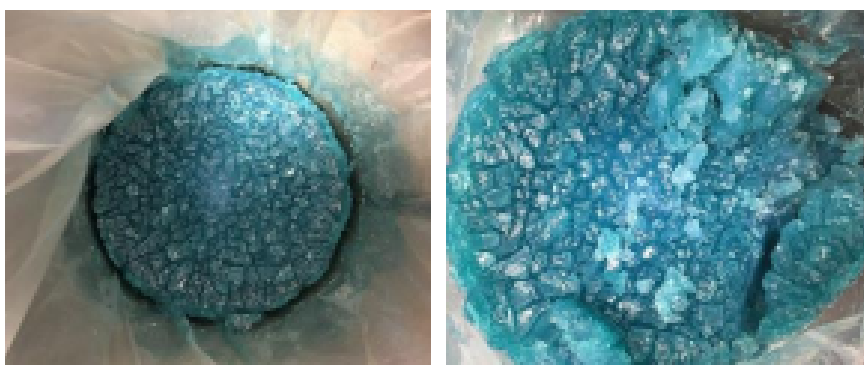
As shown, the progression from used solvent to still residue and ultimately to a clean, reusable product validates the system's performance.

Figure 2: Still bottoms post-distillation — solid residue shows minimal remaining solvent, indicating effective recovery.



Figure 1: Waste IPA prior to processing — collected from additive manufacturing cleaning operations. The mixture exhibits a dark color and heavy solids typical of used IPA.

STILL BOTTOMS (Post-Processing)



Process and Findings

Conclusion

The SolvTrue™ S700 delivered a *96% recovery rate and a reclaimed IPA concentration of approximately 99%. The results confirmed that solvent could be recovered efficiently at high concentration levels, meeting internal standards and demonstrating feasibility for customers.

The successful test validated SolvTrue™ as a practical solution for supporting leaner, more sustainable additive manufacturing operations.

**Results specific to customer success. Typical recovery rate: 95% or higher for common solvents and may vary based on solvent type, waste concentration, usage volume and operating conditions.*

SolvTrue™ S700 Solvent Recycler

The SolvTrue™ S700 is a seven gallon (liter) simple distillation recycler with vacuum assist for recycling industrial solvents with relatively high boiling points, including mineral spirits, naphthas, thinners and D-limonene.

Capacity: 7 gallon (26 liter)

Dimensions: 22.25" W x 39" L x 44" H (57 cm W x 99 cm H x 112 cm D)

Cooling: Air cooled

Electrical Configurations:

120V/1PH/60Hz/20A – Standard

220/240V/60Hz/20A – Optional

Construction: Stainless steel

Mounting: Wheels – Standard

RECOVERED/CLEAN IPA

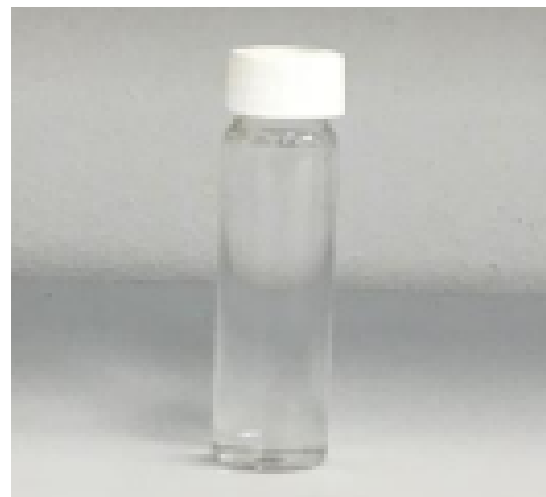


Figure 3: Clear, colorless liquid with the characteristic IPA odor, consistent with high-quality solvent ready for reuse.



SolvTrue™ S700 Solvent Recycler

Questions?

If you have questions about this report or want to explore a solution for your own operation, contact CBG Biotech at info@cbgbiotech.com.

Our team is ready to help assess your solvent usage and identify the right system for your needs.