Turning Waste into Value

Boat Manufacturer Case Study

How a Boat Manufacturer Recovered 96% of Acetone with SolvTrue™ Solvent Recycling Technology

When a well-known boat manufacturer started looking for ways to reduce solvent waste, cut disposal costs, and improve sustainability practices, they turned to CBG Biotech for answers.

Their goals? Find a reliable solution to recover Acetone suitable for reuse in the mold, tooling and parts cleaning process—without compromising quality or safety. With years of expertise and proven technology, CBG put the SolvTrue™ S700 Industrial Production Solvent Recycler to the test.

What they were looking for:

- Eliminate adhesive residue from used Acetone
- Reduce waste disposal and environmental compliance costs while improving their waste generator status
- Deliver Acetone suitable for reuse in mold, tooling and parts washing
- Reduce production costs, including solvent purchasing

To help evaluate a solution, the boat manufacturer engaged CBG Biotech to conduct a sample test demonstrating the effectiveness of Acetone recovery in their parts washing process.

Scope: The objective of this test was to run an experiment to evaluate the ability to recover Acetone used in the boat manufacturer's washing process. The contaminated solution contained Acetone mixed with resin/gelcoat and water. The goal was to separate the Acetone from this waste and provide Acetone that could be reused in mold and part washing—specifically ensuring that the recovered Acetone was free of residue or stickiness and met the performance standards needed for reuse in production.

Solvent Recovery Findings

Solvent: Acetone
Contaminants: Resin/Gelcoat (Resin)

Test Materials and Process:

CBG Biotech received four containers of used Acetone from the boat manufacturer for processing. The containers were estimated to contain approximately 80% Acetone and 20% resin-based waste. Based on the volume and equipment selected, CBG processed all four containers using the SolvTrue S700 system without vacuum. The used solvent was poured from the sample bottles into the SolvTrue processing tank.

The materials used in this test included:

- Gross weight of Acetone and waste introduced into the processing bag: 12.0 kilograms
- S700 SolvTrue Industrial Production Solvent Recycler
- S700 Mist Deflector
- Bag liner for the S700 SolvTrue system

Test Parameters: Based on the used solvent mixture provided to CBG Biotech by the boat manufacturer, CBG Biotech ran the used solvent utilizing the program settings in the CBG SolvTrue S700 Industrial Production Recycler for Acetone. This run took place for approximately three hours (including startup to end of cycle) with the supplied quantities being charged into the vessel.

Findings: During the processing run, it took approximately one hour for recovery to begin. After this point, recovery was steady throughout the process until the end of cycle. The S700 Unit utilized for this particular test is set to run for Acetone. CBG ran the program with step up settings to work to capture a good yield of Acetone from the waste in this sample test. The entire cycle ran for approximately three hours (including start up to end of cycle). The recovery rate is expected to be higher when using a larger SolvTrue Production Recycler.

The following photos highlight key stages of the test:

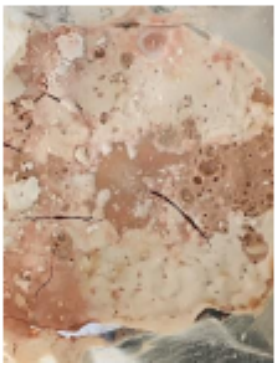
- **Photo 1**: Initial solution as introduced into the waste processing bag.
- **Photos 2-4**: Solidified and dark-colored still bottoms remaining after the distillation cycle, suggesting a high recovery of Acetone and minimal residual solvent.
- **Photo 5**: Final sample of recovered Acetone—a clear, colorless solution with the characteristic odor of Acetone, suitable for reuse in parts washing applications.

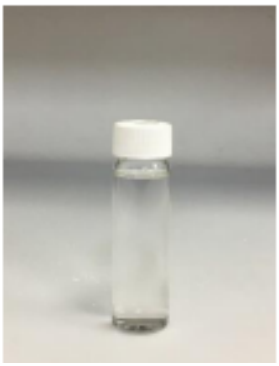
Before
used/dirty Acetone prior to distillation

After
still bottoms post-distillation

Clean
recovered/clean Acetone post-distillation







From Trial to Implementation

The results from this sample processing run, the following were noted:

- Ending quantity of Acetone (less assumed waste) = 10.0 kg for an effective yield of approximately 96.2% (10.0 ÷ 10.4; 12.0-1.6)
- Net weight of resin/gelcoat waste after recovery of Acetone from boiling tank = 1.6 kg

The total collection equated to 96.6% when combining the recovered Acetone 10.0 kg with the resin/gelcoat waste still bottoms (1.6 kg) (10.0 kg + 1.6 kg = 11.6/12.0). Based upon the sample test results, the total waste content/concentration in the combined sample solution process is close to approximately 13.3% waste concentration. This is determined by comparing the ending waste weight of 1.6 kg plus the remaining resin weight to the total beginning sample weight of approximately 12.0 kg arriving at a percentage of 13.3%.

This level of waste generally will not impact the effectiveness of solvent distillation recovery as the solids content will not absorb a high level of the heat energy, which otherwise, would be applied to phase change and distillation of the Acetone. In this application, CBG recommended that the waste percentage be limited to twenty percent for effective recovery on a larger scale.

Conclusion

CBG Biotech provided the recovered Acetone samples and test results to the manufacturer for evaluation. The test was successful. A high volume of Acetone was recovered, free from residue or stickiness, and met quality expectations for reuse in their parts washing application.

Based on the manufacturer's objectives, the test achieved the following:

- Recovered Acetone was free of residue and suitable for reuse
- Test demonstrated reduced waste output and potential improvement to generator classification
- Recovered Acetone met quality standards for mold, tooling and part washing applications
- Effective recovery rate supports reduced need for virgin solvent and lower purchasing costs

Following the successful test, the manufacturer moved forward with the purchase of SolvTrue™ Industrial Recycling equipment. They are now benefiting from on-site solvent recovery and improved operational efficiency with the CBG Biotech solution.

If you have questions about this report or want to discuss its findings, contact CBG Biotech. If you're exploring solvent recovery for your facility, our team can help assess your waste stream and determine if a recycling solution is the right fit.

Featured Technology: SolvTrue™ S700 Industrial Solvent Recycler

A 7-gallon (26-liter) batch distillation unit designed for safe, efficient recovery of Acetone and other solvents. The S700-2 is ideal for mid-volume operations looking to reduce waste, lower solvent purchasing costs, and support environmental health and safety goals with an easy-to-use, closed-loop system.