

THE EXPERTS IN INK TRANSFER TECHNOLOGIES



BRINGING DISTILLATION AND
SOLVENT RECOVERY IN HOUSE.



Daetwyler

A PROFESSIONAL RESOURCE GUIDE FROM DAETWYLER CLEANING TECHNOLOGIES



SOLVENT — AN UNAVOIDABLE EXPENSE?

It's an essential fact of doing business in the professional printing, paint, or coatings industries - solvents are a necessity. Controlling viscosity, improving dry time, preventing smudges, ensuring strong adhesion, color authenticity, cleaning up parts or equipment... undoubtedly your business depends on solvents for a variety of uses.

Though they're essential to running a successful business, there's another universal truth about solvents - they're a source of significant expense - not just to hold in inventory, but to store, use efficiently, and dispose of safely. In fact, solvent, and activities related to solvent, is often one of the biggest operational expense line items for many businesses.

The best way to illustrate this is by examining some typical costs in a standard professional print shop setting. (All figures based on nationwide averages.)

| | |
|---------------------------------|------------------|
| Solvent Cost (per gallon) | \$4.75* |
| Solvent Usage (per day) | 580 gallons |
| Total Daily Solvent Cost | \$2755.00 |

Unfortunately, that's just the beginning of what solvent actually costs the business. Once it's used, solvent must be safely disposed of, in compliance with environmental and other regulations.

| | |
|---|------------------|
| Cost of 55 Gallon Drums for Solvent Waste | \$75.00 |
| Number of Drums Needed Per Day | 11 |
| Daily Cost of Drums | \$825.00 |
| Cost of Disposal Per Drum | \$90.00 |
| Daily Cost of Disposal | \$990.00 |
| Total Daily Disposal Cost | \$1815.00 |

That's more than \$4,500 per day, just for the use and proper disposal of solvents. That's more than the average weekly salaries of a Prepress Technician, Press Assistant, and Press Operator combined*.

Even if a specific solvent or specialty waste disposal service includes leasing barrels as part of their fee, it's alarming to see how much of an operating budget goes towards an item that essentially gets thrown away.

* based on average yearly salaries as reported on www1.salary.com.

RETHINKING A “THROWAWAY” COST



Because of the potentially staggering costs of solvent usage, a number of third-party service companies came up with the ingenious idea to recycle solvent so it could be re-used instead of re-bought.

Sometimes called Solvent Recovery, the process works by separating useful solvent from effluents, waste solids, and other contaminants. One of the most common recovery methods is distillation - which heats waste fluids to boil away the solvent, which is then collected as vapor and then cooled back down so the vapor goes through condensation to become liquid again. The waste product is isolated and up to 95% of the original solvent is recovered and can be re-used with no decline in performance.

There are other solvent recovery systems that work through liquid-liquid extraction, absorption systems, film evaporation, crystallization, and membrane separation. Some processes are better suited to certain solvents, but the vast majority of solvents used in printing, paints, and coatings are excellent candidates for distillation.

| | |
|------------------------------|-------------|
| Solvent Cost (per gallon) | \$4.75* |
| Solvent Usage (per day) | 580 gallons |
| Total Initial Solvent Cost | \$2755.00 |
| Solvent Recovered | 551 gallons |
| Total New Solvent Usage | 29 gallons |
| Total Follow Up Solvent Cost | \$137.75 |

So with a third-party solvent recovery service in the mix, the numbers change a bit.

It's a fraction of the cost of using solvents new in each application. Because there is also less waste product, the number of barrels needed declines sharply, as does the cost of disposal. The price for off-site solvent recovery varies from company to company, but usually ranges between \$85 - \$175 per 55 gallon drum of used solvent, for a total daily cost of \$1,400.

This includes pick up of the used solvent, distillation to remove waste products, and the return of the now-purified solvent. Clearly, it's a much more cost-effective solution.

THE REAL COST OF SAFETY

Any time you consider bringing solvent recovery in-house, there are safety considerations. Heating solvents to flammable or explosive temperatures in low-grade equipment is not suited for novice operators and junior team members. The Renzmann line of distillers and solvent recovery units are meant to run independently with little or no human intervention required - significantly reducing risk of injury or damage to machines and shop surroundings.

YOUR SOLVENT. YOUR SAVINGS.



While a third-party vendor for solvent recovery still saves businesses thousands upon thousands of dollars per year, it's not the most effective way to reduce the costs of solvents.

The same equipment those third-party services use can also be purchased for in-house use.

Many of the distillation units are small enough to fit in the corner of a pressroom or factory floor space, and a good number of them offer automated operation, so there's no need to hire any additional personnel to oversee the recovery process. It cuts out the cost of the middle-man and delivers the same cost savings from recycling solvent.

| | Traditional (No Recovery System) | With ROTomax 30 (Estimated Recovery Rate - 95%) |
|---|--|---|
| Operational Days Per Year: | 345 | 345 |
| Shifts Per Day: | 3 | 3 |
| Current Solvent Usage Per Year (gallons): | 200,000 | 200,000 |
| SOLVENT COST (PER GALLON): | \$4.75 | \$4.75 |
| Recovered Solvent (gallons) | 0.00 | 190,000.00 |
| Total Fresh/Make-Up Solvent Cost Per Year: | \$950,000.00 | \$47,500.00 |
| Gallons of Disposable Solids (10%) | 20,000.00 | 20,000.00 |
| Gallons of Disposable Solids + Dirty Solvent: | 220,000.00 | 30,000.00 |
| 55 Gallon Drums Necessary for Disposal (rounded up to nearest whole number): | 4000 | 546.0 |
| Cost of Disposal Per Drum: | \$90.00 | \$90.00 |
| Total Cost of Disposal Per Year: | \$360,000.00 | \$49,140.00 |
| Total Operating Costs Per Year: | \$1,310,000.00 | \$96,640.00 |
| Total Savings: | 0 | \$1,213,360.00 |
| Monthly Savings | | \$101,113.33 |

RETURN ON INVESTMENT TIMING



| ROTOmaX 30 Cost Options | | + Annual Operating Cost | Total Investment | Months to ROI |
|----------------------------|-----------|----------------------------|---------------------|------------------|
| Base Model — | \$250,000 | \$96,640.00 | \$346,640 | 3 |
| Fully Automated — | \$370,000 | \$96,640.00 | \$466,640 | 4.62 |

So the question becomes - why let someone else make money off recovering your solvent? The quick ROI not only makes bringing solvent recovery in-house appealing at the outset, but also establishes a baseline for profitability that lasts as long as the equipment. (Renzmann equipment is built to last 15-20 years or more under normal continuous use).

With thousands of dollars back in your operating budget, there are many exciting possibilities for how to use those funds to better your business.

- Upgrade manufacturing or printing equipment.
- Attract top industry talent by offering competitive salaries.
- Offer customers better pricing on your products and services since you now have lower overhead.
- Expand your operation to additional locations or facilities.
- Offer solvent recovery as a service to other businesses and establish a whole new revenue stream.

Daetwyler also offers a handy tool for estimating your own savings.

Visit www.daetwyler-usa.com/roi-calculator to enter your own data and see how much you can save.

Ready to learn more about
solvent recovery that happens
on-site at your facility?
Contact Daetwyler-USA
to get started with a free
consultation.



Daetwyler

MAX Daetwyler Corporation

13420 Reese Blvd. West

Huntersville, NC 28078

Phone: 704-875-1200

Sales: 1-800-627-1011

E-Mail: cleaningtech@daetwyler.com

www.daetwyler-usa.com