

# **Solvent Alternative Testing**

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Pollution Prevention Institute



**But...**



# The project

- Solvents tested: TCE, PERC, MEK
- Hansen Solubility Parameters in Practice (HSPiP)
- 6-10 alternatives for performance testing
- EHS assessment
- 2-4 effective cleaners identified

Cleaner	Initial wt of cont.	Final wt of cont.	% Cont Removed	% AVG
SC Aircraft and Metal Cleaner 100%	0.1195	0.0068	94.3	94.9
	0.1045	0.0039	96.3	
	0.0533	0.0032	94.0	
Aerokleen Aviation Solvent 100%	0.0470	0.0045	90.4	50.9
	0.0534	0.0521	2.4	
	0.0870	0.0350	59.8	
Aquavantage 815GD 25%	0.1098	0.0628	42.8	45.4
	0.0768	0.0410	46.6	
	0.0713	0.0380	46.7	

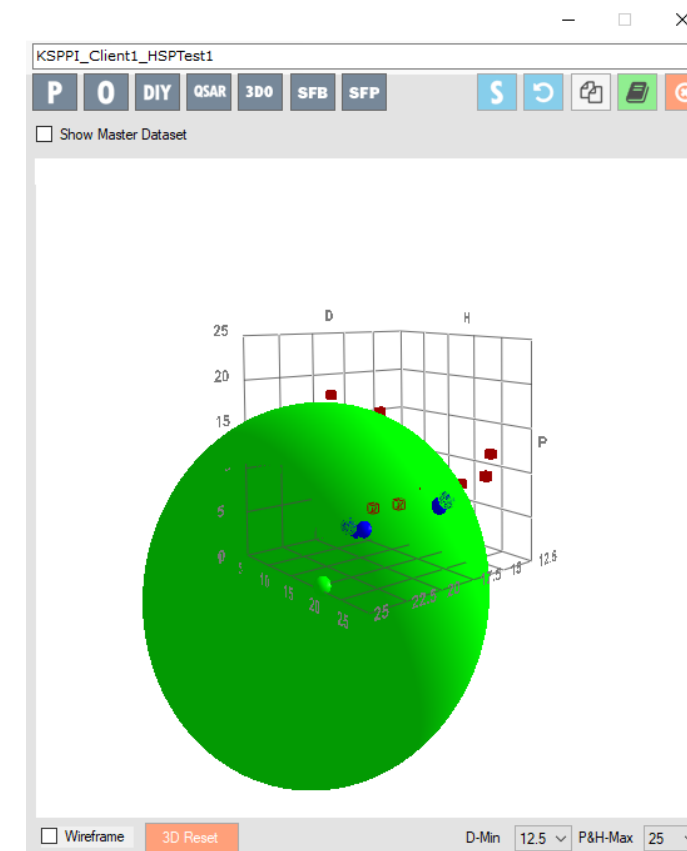
Example table of testing trial



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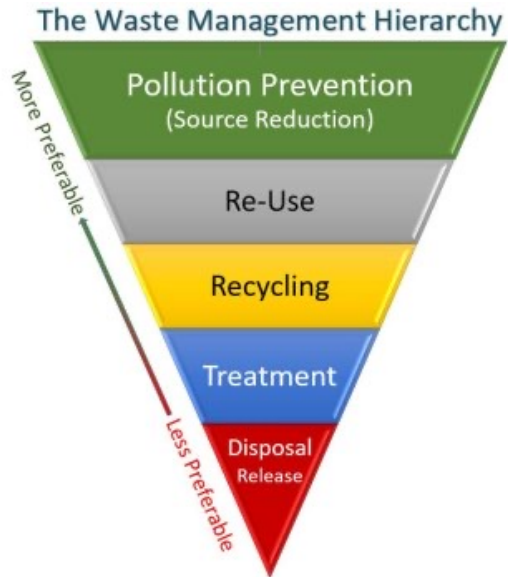


Project funded under the EPA P2 Grant



HSPiP Solubility Sphere

# Resources



TURI  
TOXIC USE REDUCTION INSTITUTE  
UMASS LOWELL  
Cleaning Laboratory

CLEANERSOLUTIONS VENDORS FORMS ABOUT CONTACT

## CleanerSolutions Database

Solutions for Surface Cleaning

FIND A PRODUCT REPLACE A SOLVENT SAFETY EVALUATION BROWSE CLIENT TYPES PARTS DESCRIPTION SEARCH

TURI  
TOXIC USE REDUCTION INSTITUTE  
UMASS LOWELL

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## P2OASYS

TURI developed the Pollution Prevention Options Analysis System tool to help companies and others organize information to compare the environmental, health and safety attributes of chemicals, formulated products and production process changes

See full description [here](#)

START ASSESSMENT LOAD FROM DATABASE IMPORT FROM FILE COMPARE SUMMARY VIEW RAW DATA

## Reducing Solvent Use and Implementing Best Practices

Environmental Health and Safety

SPIRIT

Aerospace manufacturing solvent reduction tips

KSU Pollution Prev... 32 subscribers

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Category	Original Solvents		Identified Alternatives				
	PERC	TCE	1-Propanol	Thiophene	1-Butanol	Dowanol PnBGE	Flexisolv DBE-LVP Ester
Acute Human Effects	9	8	8	7	9	8	5
Chronic Human Effects	9	9	5	5	6	3	2
Ecological Hazards	8	8	2	4	2	2	3
Environmental Fate & Transport	10	9	5	5	2	4	6
Atmospheric Hazard	6	6	2	5	2	2	2
Physical Properties	9	10	9	9	9	6	5
Process Factors	8	7	6	6	5	8	4
Life Cycle Factors	10	10	6	6	7	4	3
Weighted Average	8.6	8.4	5.4	5.9	5.3	4.6	3.8

Example table for EHS analysis using P2OASYS