



Toxics Use Reduction Institute

CleanerSolutions

A Tool for Surface Cleaning Alternatives

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TURI
TOXICS USE REDUCTION INSTITUTE

Questions to Ask

- What is the purpose of cleaning
- What are the problems with present cleaning system
- What are you trying to remove (soils)
- What is being cleaned (substrates)
- How are you cleaning it (equipment)
- How do you determine how clean is clean

Alternative Selection

- Process is challenging
 - Thousands of products
 - Different information from different vendors
 - What is right for some may not work for others
- Need for an easier selection method
 - Independent analysis of products
 - Objective operating conditions
 - Process specific final evaluations



- Linking performance evaluations with
 - Specific testing parameters
 - Matching Performance
 - Contaminant, substrate, equipment, current solvent, etc
 - Based on the testing performed at the TURI lab
 - Environmental assessments
 - Safety Scores
 - » VOC, ODP, GWP, HMIS/NFPA, pH
 - Used to identify safer and effective products

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Safety Screening Score

- Based on 50 points
 - 0 to 10 points for each parameter
 - A higher safety screening score implies a potentially safer product
 - Helps to keep from shifting risk

SSL Screening Guidelines

VOC content (g/l)	Pts
0-24	10
25-49	9
50-74	8
75-99	6
100-149	5
150-199	4
200-299	3
300	2
>300	0

GWP Score	Pts
GWP = 0	10
GWP = 1 (CO ₂)	5
All others =	0

ODP Points	Pts
ODP = 0	10
All others	0

HMIS/NFPA Point Assessment		
Total	Pts	Examples
0	10	H-0 F-0 R-0
1	9	H-0 F-0 R-1, H-0 F-1 R-0
2	8	H-1 F-1 R-0, H-2 F-0 R-0
3	7	H-1 F-1 R-1, H-2 F-1 R-0
3	2	H-3 F-0 R-0
4	6	H-2 F-2 R-0, H-1 F-2 R-1
4	1	H-1 F-3 R-0
5	5	H-2 F-2 R-1
5	0	H-1 F-3 R-1, H-2 F-3 R-0
6	4	H-2 F-2 R-2
6	0	H-3 F-3 R-0
7, 8, 9	0	H-3 F-3 R-1, H-3 F-3 R-2

pH	Pts
0-1.0	0
1.1-2.4	4
2.5-2.9	6
3.0-4.0	7
4.1-5.9	8
6.0-6.9	9
7.0-7.9	10
8.0-8.9	9
9.0-9.9	8
10-11.4	7
11.5-11.9	6
12-12.4	4
12.5-12.9	2
13-14	0

Example Safety Screening Scores

Current			Alternative 1			Alternative 2			Alternative 3		
Safety Score Help											
Indicator	Value	Points									
VOC:	1470	0	VOC:	NA	10	VOC:	780	0	VOC:	86	5
GWP:	0	10									
ODP:	0	10									
NFPA H:	2		NFPA H:	1		HMIS H:	0		HMIS H:	1	
NFPA F:	1	7	NFPA F:	3	1	HMIS F:	2	8	HMIS F:	0	9
NFPA R:	0		NFPA R:	0		HMIS R:	0		HMIS R:	0	
pH:	NA	10	pH:	NA	10	pH:	8	9	pH:	12.3	4
Total: 37			Total: 41			Total: 37			Total: 38		

Other Indicators

- Further analysis should be conducted to verify that the selected products are compatible with your process
- Determine if there are any health risks that the screening does not address

Other Possible Indicators

- Aquatic Toxicity
- Biodegradability
- Carcinogens, Mutagens or Teratogens
- Concentration
- Disposal
- Endocrine disruptors
- Eutrophication
- Fragrances and Dyes
- Life Cycle Assessment
- Neurotoxins/CNS Depressants
- Packaging
- Recyclability
- Reproductive Toxicity



- Assess potential environmental, worker, and public health impacts of alternative technologies aimed at reducing toxics use
- Comprehensive and systematic thinking about the potential hazards posed by current and alternative processes

P2OAYSys Score

- Each criteria assessed a score out of 10 points
 - A lower P2OAYSys score implies a potentially safer product
 - Averages score for each criteria in a section
 - Overall product score normalized to a 10 point scale.

Standardized Hazard Score

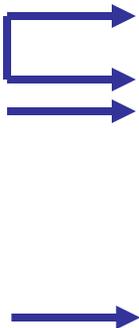
Standardized Hazard Score Data Base

		2.00	4.00	6.00	8.00	10.00
Acute human effects	Units					
Inhalation LC50	ppm	10000.00	1000.00	150.00	15.00	<15
PEL/TLV	ppm	200.00	100.00	25.00	5.00	<5
PEL/TLV (dusts/particles)	mg/m ³	10.00	5.00	1.00	0.10	<0.1
IDLH	ppm	1000.00	500.00	50.00	10.00	<10
Respiratory irritation	L/M/H	L	L/M	M	M/H	H
Oral LD50	mg/kg	5000.00	500.00	50.00	5.00	<5
dermal irritation	L/M/H	L	L/M	M	M/H	H
skin absorption	L/M/H	L	L/M	M	M/H	H
dermal LD50	mg/kg	5000.00	500.00	50.00	5.00	<5
ocular irritation	L/M/H	L	L/M	M	M/H	H
Chronic human effects						
Reference Dose RfD	mg/kg/day	0.10	0.05	0.01	0.001	<0.001
carcinogen	IARC/EPA Class	4,E	3,D	2B,C	2A,B	1,A
mutagen	L/M/H	L	L/M	M	M/H	H
reproductive effects	L/M/H	L	L/M	M	M/H	H
neurotoxicity	L/M/H	L	L/M	M	M/H	H
developmental effects	L/M/H	L	L/M	M	M/H	H
respir. sensitivty/disease	L/M/H	L	L/M	M	M/H	H
other chronic organ effects	L/M/H	L	L/M	M	M/H	H
Physical hazards						
heat	WBGT, °C	25.00	27.00	30.00	32.00	>32
noise generation	dB(A)	80.00	85.00	85.00	90.00	>90.00
vibration	m/S ²	4.00	6.00	8.00	12.00	>12.00
ergonomic hazard	L/M/H	L	L/M	M	M/H	H
psychosocial hazard	L/M/H	L	L/M	M	M/H	H

Aquatic hazards						
Water Quality Criteria (HWQC)	mg/l	>10	6-8	4-6	1-4	<1
aquatic LC50	mg/l	1000.00	50.00	1.00	0.10	<0.10
fish NOAEC	mg/l	0.20	0.02	0.0020	0.0002	<0.0002
plant EC 50	mg/l	100.00	10.00	1.00	0.10	<0.1
observed ecological effects	L/M/H	L	L/M	M	M/H	H
Persistence/bioaccumulation						
persistence	L/M/H	L	L/M	M	M/H	H
BOD half-life	days	4.00	10.00	100.00	500.00	>500
hydrolysis half-life	days	4.00	10.00	100.00	500.00	>500
bioconcentration	log kow	1.00	2.00	4.00	6.00	>6
bioconcentration factor (BCF)	kg/l	10.00	100.00	200.00	1000.00	>1000
Atmospheric hazard						
greenhouse gas	Y/N					
ozone depletor	ODP units					
acid rain formation	Y/N					
NESHAP	Y/N					
Disposal hazard						
landfill	L/M/H	L	L/M	M	M/H	H
EPCRA reportable quantity	lbs	5000.00	1000.00	100.00	10.00	1.00
incineration	L/M/H	L	L/M	M	M/H	H
recycling	L/M/H	L	L/M	M	M/H	H

Standardized Hazard Score

incineration	L/M/H	L	L/M	M	M/H	H
recycling	L/M/H	L	L/M	M	M/H	H
Chemical hazard						
vapor pressure	mm Hg	0.10	1.00	10.00	100.00	>100
solubility in water	mg/L					
specific gravity	N/A					
flammability	0,1,2,3,4	0.00	1.00	2.00	3.00	4.00
flash point	°C	100.00	75.00	25.00	10.00	<10
reactivity	0,1,2,3,4	0.00	1.00	2.00	3.00	4.00
pH	pH units	7.00	6-7, 7-8	5-6, 8-9	3-5, 9-11	1-3, 11-14
corrosivity	L/M/H	L	L/M	M	M/H	H
High pressure system	L/M/H	L	L/M	M	M/H	H
High temperature system	L/M/H	L	L/M	M	M/H	H
mixture/reaction potential	L/M/H	L	L/M	M	M/H	H
odor threshold	L/M/H	L	L/M	M	M/H	H
volatile organic compound	L/M/H	L	L/M	M	M/H	H
Energy & resource use						
non renewable resource	L/M/H	L	L/M	M	M/H	H
water use	L/M/H	L	L/M	M	M/H	H
energy use	L/M/H	L	L/M	M	M/H	H
Product hazard						
upstream effects	L/M/H	L	L/M	M	M/H	H
consumer hazard	L/M/H	L	L/M	M	M/H	H
disposal hazard	L/M/H	L	L/M	M	M/H	H
Exposure potential						
Exposure potential	L/M/H	L	L/M	M	M/H	H



P2OAYSys Example

Comparative Scores									
Category		Current		Alternative 1		Alternative 2		Alternative 3	
Acute human effects	Units	Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
Inhalation LC50	ppm								
PEL/TLV	ppm	4	100	2	100			4	100
PEL/TLV (dusts/particles)	mg/m3			2	100				
IDLH	ppm			2	100				
Respiratory irritation	L/M/H	6	100	4	100	6	100	2	100
Oral LD50	mg/kg	2	100						
dermal irritation	L/M/H	6	100	8	100	6	100	2	100
skin absorption	L/M/H			8	100	6	100		
dermal LD50	mg/kg								
ocular irritation	L/M/H	6	100	10	100	6	100	6	100
		6	100	9	100	6	100	5	100
Chronic human effects		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
Reference Dose RfD	mg/kg/day								
carcinogen	ARC/EPA Clas:	8	100	4	100	2	100	2	100
mutagen	L/M/H	6	100	2	100	2	100	2	100
reproductive effects	L/M/H	6	100			2	100	2	100
neurotoxicity	L/M/H	6	100	6	100	2	100	2	100
developmental effects	L/M/H			2	100	2	100	2	100
respir. sensitivty/disease	L/M/H	6	100					2	100
other chronic organ effects	L/M/H	6	100	4	100			2	100
		7	100	5	100	2	100	2	100
Physical hazards		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
heat	WBGT, °C								
noise generation	dba								
vibration	m/S ²								
ergonomic hazard	L/M/H								
psychosocial hazard	L/M/H								

P2OAYSys Example

		Current		Alternative 1		Alternative 2		Alternative 3	
		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
Aquatic hazards									
Water Quality Criteria (HWQC)	mg/l								
aquatic LC50	mg/l	6	100						
fish NOAEC	mg/l			2	100				
plant EC 50	mg/l								
observed ecological effects	L/M/H	6	100						
		6	100	2	100				
Persistence/bioaccumulation		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
persistence	L/M/H			2	100				
BOD half-life	days			4	100				
hydrolysis half-life	days			10	100				
bioconcentration	log kow			2	100				
bioconcentration factor (BCF)	kg/l	10	100						
		10	100	7	100				
Atmospheric hazard		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
greenhouse gas	Y/N	2	100			2	100	2	100
ozone depletor	ODP units	2	100			2	100	2	100
acid rain formation	Y/N	2	100					2	100
NESHAP	Y/N	10	100			2	100	2	100
		6	100			2	100	2	100
Disposal hazard		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
landfill	L/M/H					2	100		
EPCRA reportable quantity	lbs			2	100				
incineration	L/M/H								
recycling	L/M/H								
				2	100	2	100		

P2OAYSys Example

		Current		Alternative 1		Alternative 2		Alternative 3	
Chemical hazard		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
vapor pressure	mm Hg	8	100	10	100	10	100	10	100
solubility in water	mg/L								
specific gravity									
flammability	0,1,2,3,4	4	100	8	100	6	100	2	100
flash point	°C			10	100	2	100	2	100
reactivity	0,1,2,3,4	2	100	2	100	2	100	2	100
pH	pH units					4	100	10	100
corrosivity	L/M/H							2	100
High pressure system	L/M/H	2	100			2	100	2	100
High temperature system	L/M/H	6	100			2	100	6	100
mixture/reaction potential	L/M/H	2	100	4	100	2	100	2	100
odor threshold	L/M/H			6	100	6	100	2	100
volatile organic compound	L/M/H	10	100			10	100	2	100
		9	100	10	100	10	100	10	100
Energy & resource use		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
non renewable resource	L/M/H	10	100			2	100		
water use	L/M/H	2	100			2	100	6	100
energy use	L/M/H	6	100			2	100	6	100
		8	100			2	100	6	100
Product hazard		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
upstream effects	L/M/H								
consumer hazard	L/M/H			2	100			2	100
disposal hazard	L/M/H							2	100
				2	100			2	100
Exposure potential		Score	Cert.	Score	Cert.	Score	Cert.	Score	Cert.
Exposure potential	L/M/H			4	100			2	100
				4	100			2	100

Comparison Results

Hazard Score Table									
Category	Current Process		Alternative 1		Alternative 2		Alternative 3		Value Weight
	Score	Certainty	Score	Certainty	Score	Certainty	Score	Certainty	
Acute human effects	6	100	9	100	6	100	5	100	10
Chronic human effects	7	100	5	100	2	100	2	100	10
Physical hazards									10
Aquatic hazard	6	100	2	100					10
Persistence/bioaccum	10	100	7	100					10
Atmospheric hazard	6	100			2	100	2	100	10
Disposal hazard			2	100	2	100			10
Chemical hazard	9	100	10	100	10	100	10	100	10
Energy/resource use	8	100			2	100	6	100	10
Product hazard			2	100			2	100	10
Exposure potential			4	100			2	100	10
Final	52		41		24		29		110
Weighted Final	7.43	100.00	5.13	100.00	4.00	100.00	4.14	100.00	

Current Technology	Trichloroethylene
Alternative 1	Acetone
Alternative 2	Terpenes (Limonene)
Alternative 3	Alakline Aqueous

- No classification had same overall ranking in both systems
- Tools did result in similar order
 - No significant loss to EHS by using Screening System

Ranking Comparisons

Classification	P2OASys	CleanerSolutions in P2OASys	Safety Screening Score
Acidic	15	12	10
Alcohol	10	7	6
Alkaline	11	10	9
Blasting	6	1	4
Caustic	14	16	15
Enzymatic	1	3	2
Ester	4	5	5
Halogenated	17	17	16
Hydrocarbon	12	13	17
Neutral	3	2	1
Organic-Bio	2	4	3
Organic-traditional	8	11	11
Other	9	14	7
Powder	13	9	8
Replaced Solvents	16	15	13
Semi-Aqueous	5	6	14
Terpene	7	8	12

Example Comparisons

	TCE	Acetone	Terpene	Alkaline Aqueous
Safety Screening	37	41	37	38
P2OASys	7.63	5.13	4.00	4.14
Rank S/P	3/4	1/3	3/1	2/2

TURI Lab Database of Testing

- >20,500 Lab testing records
 - 340 projects
 - 297 Companies
- >700 Products listed
 - 225 Vendors



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CleanerSolutions Database - A Simple Solution for Solvent Substitution for Surface Cleaning. - Windows Internet Explorer

http://www.cleansolutions.org/ Live Search

File Edit View Favorites Tools Help

CleanerSolutions Database - A Simple Solution for Sol...

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A Simple Solution for Solvent Substitution for Surface Cleaning

[More about the CleanerSolutions On-Line Tool](#)

<p>CleanerSolutions Home</p> <ul style="list-style-type: none">About CleanerSolutionsDatabase DemosTURI Laboratory HomeContact the Lab <p>Laboratory Clients and Test</p> <ul style="list-style-type: none">Find a CleanerReplace a SolventSafety Screening SearchBrowse Clients and Trials <p>Vendor Supplied Information</p> <ul style="list-style-type: none">Vendor SearchBrowse Vendors and Products <p>Forms</p> <ul style="list-style-type: none">Vendor FormsClient Forms	<p>TURI Laboratory Client and Test Results</p> <p>Search information generated from testing conducted at TURI's Laboratory. Results are linked to client testing information to help you select an alternative that will match your needs.</p> <p>Find a Cleaner Identify alternatives that have cleaned your contaminant.</p> <p>Replace a Solvent Find alternatives to your current solvent cleaner.</p> <p>Safety Screening Search Find products based on safety and environmental criteria.</p> <p>Browse Clients and Trials Look through past lab clients by industry.</p> <p>Forms</p> <p>Vendor Forms Forms for submitting product information to the lab.</p> <p>Client Test Request Form Forms to arrange for testing for your company.</p>	<p>Vendor Supplied Information</p> <p>Search vendor-supplied information for an alternative cleaner. Testing performed by TURI for listed products also are displayed.</p> <p>Search Vendor Information Search for products based on vendor recommended uses.</p> <p>Browse Vendors and Products Find vendors by name.</p> <p>NEW! Material Safety Data Sheets and Technical Data Sheets for most products are now available on each Product Information page.</p>
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Find a Cleaner Search

CleanerSolutions Database

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Find a Cleaner

Search for a cleaner that has successfully removed a contaminant similar to your own. Chances are that the alternative will also work for you. Optionally, you can add substrate and equipment criteria to help narrow your search.

Required Field

You must select one or more contaminants.

- Contaminant
- Fluxes
 - Graphite
 - Greases
 - Hucker's Soil
 - Inks
 - Latex binder
 - Lubricating/Lapping Oil
 - Metal fines
 - Mold Releases
 - None
 - Oil
 - Oxides
 - Paints

Optional Fields

Filter your search by substrate or equipment type, or leave these fields set to *Any* to include all results for a given contaminant.

- Substrate
- Copper
 - Electronics
 - Fiberglass
 - Glass/Quartz
 - Gold
 - Liquid
 - Marble
 - Nickel
 - Other
 - Plastic
 - Stainless Steel
 - Steel

- Equipment
- Any
 - High Pressure Spray
 - Immersion/Soak
 - Low Pressure Spray
 - Manual Wipe
 - Mechanical Agitation
 - Media Blasting
 - Plasma
 - Supercritical Extraction
 - Ultrasonics
 - Vapor Degreasing

All Fields Hold down the *shift* or *ctrl* keys to select multiple values.

Return only effective results.

Reset

Submit



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Find a Cleaner Search Results | [Search Again](#)

Current Search Information

Search Criteria

Contaminant: Greases, Lubricating/Lapping Oils, Oil
Substrate: Nickel, Stainless Steel
Equipment: Immersion/Soak, Ultrasonics

Results

Found 2900 records
Showing records 1 - 50

Help

[Search Results Field Definitions](#)
[Contact the lab](#)

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Laboratory Clients and Test

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Vendor Supplied Information

- [Vendor Search](#)
- [Browse Vendors and Products](#)

Forms

- [Vendor Forms](#)
- [Client Forms](#)



<< < Showing records 1 - 50 of 2900 | [Field Definitions](#) > >>

Company Name product Name	Safety Score	Classification	Contaminant	Substrate	Equipment	Client #			Effective
						Project #	Total		
Mirachem Corporation Mirachem 500 [compare]	42	Alkaline Aqueous	Oil	Stainless Steel	Immersion/Soak	261	1		N
Mirachem Corporation Mirachem 500 [compare]	42	Alkaline Aqueous	Lubricating/Lapping Oils	Stainless Steel	Immersion/Soak	261	1	2	N
US Polychem Corporation Polyspray Jet 790 XS [compare]	45	Alkaline Aqueous	Oil	Stainless Steel	Immersion/Soak	261	1	1	N
Mirachem Corporation Mirachem 500 [compare]	42	Alkaline Aqueous	Oil	Stainless Steel	Immersion/Soak	261	1	1	Y
Dakite Products Inproclean 3800 [compare]	42	Alkaline Aqueous	Oil	Stainless Steel	Immersion/Soak	261	1	1	Y

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Product Information

Inproclean 3800

[Add to Comparison List](#)

Vendor Provided Information

Product information cited in this section is supplied directly by the vendors. The Institute has not verified the accuracy of any of this information and is not liable for any claims made by the vendors. TURI is likewise not responsible for any typographical errors.

Vendor Name: Oakite Products

Product Classification: Alkaline Aqueous

Recommended Contaminants: Buffing/Polishing Compounds, Cutting/Tapping Fluids, Greases, Inks, Lubricating/Lapping Oils, Oil

Recommended Equipment: Immersion/Soak, Mechanical Agitation, Ultrasonics

Recommended Substrates: Alloys, Aluminum, Brass, Carbon Steel, Copper, Gold, Nickel, Stainless Steel, Steel, Sterling/Silver, Tin

MSDS / TDS: [Inproclean 3800 MSDS](#), [Inproclean 3800 TDS](#)

Safety Score | [Help](#)

Indicator	Value	Points
VOC:	0	10
GWP:	0	10
ODP:	0	10
HMIS H:	2	
HMIS F:	0	8
HMIS R:	0	
pH:	12	4

Total: 42

Laboratory Evaluation of Inproclean 3800 | [Field Definitions](#)

Client #	Project #	Trial #	Contaminant	Substrate	Equipment	Effective
5	1	0	Greases	Brass	Immersion/Soak	
5	1	0	Greases	Brass	Immersion/Soak	
5	1	0	Oil	Brass	Immersion/Soak	
5	1	0	Oil	Brass	Immersion/Soak	

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Safety Screening Search

Search for cleaners matching minimum *safety* or *environmental* criteria.

VOC Content	Global Warming Potential	Ozone Depletion Potential	HMIS/NFPA Rating	pH Range
Maximum <input type="text" value="25"/> <input type="button" value="v"/> grams/liter	GWP <input type="text" value="No potential"/> <input type="button" value="v"/>	ODP <input type="text" value="No potential"/> <input type="button" value="v"/>	Maximum H: <input type="text" value="2"/> <input type="button" value="v"/> Maximum F: <input type="text" value="1"/> <input type="button" value="v"/> Maximum R: <input type="text" value="0"/> <input type="button" value="v"/>	Minimum <input type="text" value="5"/> <input type="button" value="v"/> Maximum <input type="text" value="10"/> <input type="button" value="v"/>
Overall Safety Score Range				
Minimum <input type="text" value="Any"/> <input type="button" value="v"/>		Maximum <input type="text" value="Any"/> <input type="button" value="v"/>		
			<input type="button" value="Reset"/>	<input type="button" value="Submit"/>

CleanerSolutions Database

Toxics Use Reduction Institute · Surface Solutions Laboratory



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Client Information

Client Number 5 (Musical Instrument Refinisher)

Client Images:



Project Number 1

Summary: An immersion system using an aqueous cleaner, Oakite Inproclean 3800, was found but not implemented at the facility due to personnel changes. System was used by personnel which left the company.

Test Objective: General purpose degreasing prior to lacquering

Problems with Current Method: Uses hazardous solvents

Purpose of Cleaning: To remove grease and oils from musical instruments.

Product Use: tuba mouth piece

Cleaning Chemicals: Trichloroethylene, Methylene Chloride

Trial Number	Date Run	Purpose	Success Rating
0	05/10/95	Preliminary testing	Preliminary compatibility tests on substrate coupons encouraging for at least one cleaning chemistry. More in-depth laboratory testing necessary.
3	05/11/95	Evaluation of Oakite Inproclean 3800	Results successful using TACT (time, agitation, concentration, and temperature, as well as rinsing and drying) and/or other cleaning chemistries examined.

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Trial Report

Trial Number 5 (Client Number 272, Project Number 1)

Trial Purpose: To evaluate selected cleaners using spray cleaning.

Date Run: 10/31/06

Experiment Procedure:

Two cleaning products were diluted to 10% using hot tap water (120 F) in 1000 ml beakers. Supplied parts that were received already contaminated were cleaned in the solution for less than one minute. Two types of parts were cleaned. Following cleaning in the low pressure spray system parts were rinsed for 15 seconds in a tap water bath at 120 F and dried using dry compressed air at room temperature. Parts were analyzed visually. Cleaned parts were packaged and sent to the client. Following the cleaning at 10%, the product would be diluted to a lower concentration to reduce foaming if necessary.

Trial Results

Both parts subjected to the low pressure spray had a significant amount of buffing compound removed within the 1 minute of cleaning. The Polyspray Jet 790 XS at 10% had less foaming than the Detergent 8. During cleaning, the spray flow was directed into the 1000 ml beaker (filled within 0.5 inches of the top of the beaker with cleaning product). There was some bubbling of the solution but not enough to have any overflow of the beaker. There was no overflow even after 5 minutes of continual spray into the beaker.

Success Rating

Results suggest a scale-up feasible match for cleaning chemistry and equipment. Pilot plant study with actual parts recommended.

Conclusion

Parts did not have to be completely clean to be considered successful as the spray washing was an attempt to remove excess buffing compound prior to cleaning with ultrasonic energy. The 10% solutions of Detergent 8 and Polyspray Jet 790 XS had no foaming issues and removed about half of the buffing compound with minimal spray time and pressure.

Foaming levels are shown in the attached photographs.

Other Features

- MSDS/TDS sheets
- Project Status
- Side-by-side comparison of alternatives
- Vendor searching

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Browse Clients and Trials

Browse past lab clients by industry sector.

Metal (Metal)

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Client Number	Project Number	In Progress	Implementation	Tech Transfer	Analysis	Test Objective
121	1		Y	Y		To replace freon based cleaner for cleaning brass and nickel plated parts contaminated with fingerprints and fibers.
150	1			Y		Positive tests for MEK replacement and aluminum cleaning
154	1					Recommend alternative degreasing chemistries and equipment to reduce the use or replace TCE vapor degreaser.
158	1		Y			Improve cleaning of weld edge backer and wire prior to EB weld
159	1			Y		Would like to utilize SCL's database to find what cleaning agent to use to clean Moly-Dee Tapping Fluid from stainless steel.
169	1			Y		Database search to determine most effective cleaning solution
171	1			Y		To find suitable aqueous cleaners for this application
175	1			Y		Want a list of any known cleaner (solvent) for RTV silicone
177	1					To find a solvent to replace acetone to remove mesh from metal ring
184	1		Y			To find a more effective cleaner/degreasing chemistry
193	1				Y	Comparison of two ultrasonic cleaners. Two parts to be supplied for analysis, one from each cleaner.
197	1			Y		To generate a list of products that can be used for glass



Side-By-Side Comparison

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Safety Screening Search

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Vendor Provided Information

Product information cited in this section is supplied directly by the vendors. The Institute has not verified the accuracy of any of this information and is not liable for any claims made by the vendors. TURI is likewise not responsible for any typographical errors.

Surface Cleanse 930 [x]	Sea Wash Blue [x]	Mirachem 500 [x]
<p>Vendor Name: International Products Corporation</p> <p>Classification: Neutral Aqueous</p> <p>Recommended Contaminants: Adhesive, Cutting/Tapping Fluids, Fluxes, Greases, Lubricating/Lapping Oils, Oil, Paints, Resins/Rosins</p> <p>Recommended Equipment: Immersion/Soak, Manual Wipe, Ultrasonics</p> <p>Recommended Substrates: Alloys, Aluminum, Brass, Carbon Steel, Ceramics, Copper, Galvanized Steel, Glass/Quartz, Nickel, Plastic, Stainless Steel, Steel, Sterling/Silver, Tin</p> <p>MSDS / TDS: Surface Cleanse 930 MSDS, Surface Cleanse 930 TDS-2, Surface Cleanse 930 TDS</p>	<p>Vendor Name: Warren Chemical Company</p> <p>Classification: Neutral Aqueous</p> <p>Recommended Contaminants: Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Oil</p> <p>Recommended Equipment: Immersion/Soak, Low Pressure Spray, Manual Wipe, Ultrasonics</p> <p>Recommended Substrates: Aluminum, Brass, Ceramics, Copper, Iron, Nickel, Stainless Steel, Steel, Titanium</p> <p>MSDS / TDS: None available.</p>	<p>Vendor Name: Mirachem Corporation</p> <p>Classification: Alkaline Aqueous</p> <p>Recommended Contaminants: Carbon Deposits, Cutting/Tapping Fluids, Greases, Lubricating/Lapping Oils, Oil</p> <p>Recommended Equipment: Immersion/Soak, Low Pressure Spray, Manual Wipe, Mechanical Agitation, Steam, Ultrasonics</p> <p>Recommended Substrates: Alloys, Aluminum, Brass, Carbon Steel, Ceramics, Copper, Electronics, Fiberglass, Galvanized Steel, Glass/Quartz, Gold, Iron, Nickel, Plastic, Stainless Steel, Steel, Sterling/Silver, Teflon, Tin, Titanium</p> <p>MSDS / TDS: Mirachem 500 MSDS, Mirachem 500 TDS-2, Mirachem 500 TDS</p>

Side-By-Side Comparison

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Safety Screening Information								
Surface Cleanse 930 [x]			Sea Wash Blue [x]			Mirachem 500 [x]		
Safety Score Help			Safety Score Help			Safety Score Help		
Indicator	Value	Points	Indicator	Value	Points	Indicator	Value	Points
VOC:	6	10	VOC:	0	10	VOC:	146	5
GWP:	0	10	GWP:	0	10	GWP:	0	10
ODP:	0	10	ODP:	0	10	ODP:	0	10
HMIS H:	2		HMIS H:	0		HMIS H:	1	
HMIS F:	0	8	HMIS F:	0	10	HMIS F:	0	9
HMIS R:	0		HMIS R:	0		HMIS R:	0	
NFPA H:	2		NFPA H:	2		NFPA H:	2	
NFPA F:	0		NFPA F:	0		NFPA F:	0	
NFPA R:	0		NFPA R:	0		NFPA R:	0	
pH:	5.9	8	pH:	7	10	pH:	9	8
Total: 46			Total: 50			Total: 42		

Lab Evaluation Summary		
Surface Cleanse 930 [x]	Sea Wash Blue [x]	Mirachem 500 [x]
Number of Trials: 129 30 effective/99 ineffective	Number of Trials: 20 16 effective/4 ineffective	Number of Trials: 92 81 effective/11 ineffective
Tested Contaminants: Greases, Lubricating/Lapping Oils, Latex binder, Adhesive, Fluxes, Oil, Carbon Deposits, Coatings, Resins/Rosins, Paints, Cutting/Tapping Fluids	Tested Contaminants: Carbon Deposits, Greases, Oil, Lubricating/Lapping Oils, Cutting/Tapping Fluids	Tested Contaminants: Greases, Inks, Oil, Paints, Lubricating/Lapping Oils, Mold Releases, Adhesive, Cutting/Tapping Fluids
Tested Substrates: Aluminum, Stainless Steel, Alloys, Brass, Copper, Nickel, Steel, Cold Rolled Steel	Tested Substrates: Aluminum, Stainless Steel, Cold Rolled Steel, Brass, Steel	Tested Substrates: Plastic, Aluminum, Stainless Steel, Alumina, Brass, Copper, Nickel, Cold Rolled Steel
Tested Equipment: Immersion/Soak, Ultrasonics	Tested Equipment: Immersion/Soak, Low Pressure Spray, Ultrasonics	Tested Equipment: Immersion/Soak, Manual Wipe

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Vendor Search

Search for products based on vendor-recommended contaminant, substrate and equipment information.

General Product Information

Company Name

Product Name:

Product Classification:

- Any
- Acidic Aqueous
- Alcohol
- Alcohol-Organic
- Alcohol-Semi Aqueous
- Alkaline Aqueous
- Blasting
- Caustic
- Enzymatic/Microbial
- Ester
- Extracting
- HCFC

Vendor Recommended Product Usage

Vendor Recommended Contaminants:

- Buffing/Polishing Comp
- Calcium/lime
- Carbon Deposits
- Clay
- Coatings
- Cutting/Tapping Fluids

Vendor Recommended Substrates:

- Carbon Steel
- Ceramics
- Chrome
- Cold Rolled Steel
- Copper
- Electronics

Vendor Recommended Equipment:

- Any
- High Pressure Spray
- Immersion/Soak
- Low Pressure Spray
- Manual Wipe
- Mechanical Agitation
- Media Blasting

CleanerSolutions

- Check it out on-line to start your search for a new cleaning method
 - www.cleansolutions.org
- Remember, It All Depends
 - The products you find should be tested on your specific soils following your current cleaning process
 - Time, temperature, equipment
- TURI's Lab can help you

Find A Cleaner Demo

CleanerSolutions Database - A Simple Solution for Solvent Substitution for Surface Cleaning. - Windows Internet Explorer

http://www.cleansolutions.org/

File Edit View Favorites Tools Help

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A Simple Solution for Solvent Substitution for Surface Cleaning

[More about the CleanerSolutions On-Line Tool](#)

TURI Laboratory Client and Test Results

Search information generated from testing conducted at TURI's Laboratory. Results are linked to client testing information to help you select an alternative that will match your needs.

[Find a Cleaner](#)
Identify alternatives that have cleaned your contaminant.

[Replace a Solvent](#)
Find alternatives to your current solvent cleaner.

[Safety Screening Search](#)
Find products based on safety and environmental criteria.

[Browse Clients and Trials](#)
Look through past lab clients by industry.

Forms

[Vendor Forms](#)
Forms for submitting product information to the lab.

[Client Test Request Form](#)
Forms to arrange for testing for your company.

Vendor Supplied Information

Search vendor-supplied information for an alternative cleaner. Testing performed by TURI for listed products also are displayed.

[Search Vendor Information](#)
Search for products based on vendor recommended uses.

[Browse Vendors and Products](#)
Find vendors by name.

NEW! Material Safety Data Sheets and Technical Data Sheets for most products are now available on each Product Information page.

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