



ValCOOL®

ValCOOL® General Catalog

Metalworking fluids

_INNOVATIONS

**ValCOOL® - a cutting fluid
system with synergy**

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SERVICE

If it's just about the tool,
you can turn to anyone -
If you want more, turn to ValCOOL, LLC.

Our Sales Engineers are widely regarded as the most competent and responsive in the business: they know the material, the workpiece, the tools and the fluids that you need to make it right. Together with our Field Application Engineers, they're available with on-site assistance and technical support when you need it.

EASY TO ORDER

Material #/Order Numbers

Makes ordering products quick, easy and accurate. An Material #/Order Number is assigned to every ValCOOL® fluid, cleaner and accessory. To place an order, simply provide the desired quantity and the Material #/Order Number.

	Product	Chlorinated	Cast Iron	Steel	High Carbon Steel	Low Silicon Aluminum	High Silicon Aluminum	Titanium	Nickel Alloys	Brass & Copper	Application Severity	Recommended Concentration	Refractive Index Range
SEMI-SYNTHETIC	VP 700 P		◆	◆	◆	◆	◆	◆	◆	◆	Low ↕ High	5 – 10%	2.5 – 6.0
	VP 800 P		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	2.5 – 6.0
	VPTECH P		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	3.0 – 6.5
	VP 850		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	3.0 – 6.5
	VP 690		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	5.0 – 9.0
	VP 855 P		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	3.0 – 6.5
	Aerotech B		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	5.0 – 10.0
SOLUBLE	VP 650 P	✓	◆	◆	◆	◆	◆	◆	◆	◆	Low ↕ High	5 – 10%	5.0 – 10.0
SYNTHETIC	VP 910 P		◆	◆	◆	◆	◆	◆	◆	◆	Low ↕ High	5 – 10%	1.8 – 4.0
	VP 920 P		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	1.4 – 3.0
	VP 930		◆	◆	◆	◆	◆	◆	◆	◆		5 – 10%	2.6 – 5.3
	VP 940 P		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Carbide Grinding	5 – 10%	2.0 – 4.0
CUTTING OIL	VP 505 P		◆	◆	◆	◆	◆	◆	◆	◆	Low ↕ High	Straight Oils! No Mixing Required!	
	VP 520 P		◆	◆	◆	◆	◆	◆	◆	◆			
	VP 525 P		◆	◆	◆	◆	◆	◆	◆	◆			
	VP 528 P		◆	◆	◆	◆	◆	◆	◆	◆			
	VP 580 P		MQL - Minimum Quantity Lubricant / Misting Oil										

◆ Best
 ◆ Better
 ◆ Good
 ◆ Do Not Use
 N/A Not Applicable

REFRACTIVE INDEX MULTIPLIER FACTORS	
Product	Multiplier Factor
VP 920 P	3.7
VP 930	3.1
VP 910 P	3.1
VP 700 P	2.8
VP 940 P	2.5
VP 800 P	2.1
VPTECH P	1.6
VP 855 P	1.6
VP 850	1.6
Aerotech B	1.2
VP 690	1.1
VP 650 P	1.0

SEMI-SYNTHETIC

The lubricity of a soluble with the cooling and stability characteristics of a full synthetic.

	Product	Description	Characteristics	Benefit
Light Duty	VP 700 P	<ul style="list-style-type: none"> General-purpose non-chlorinated for light to medium machining 	<ul style="list-style-type: none"> Chlorine-free Vapor phase inhibition Most cost-effective semi-synthetic 	<ul style="list-style-type: none"> Meets specific regulatory requirements Less re-work, machine maintenance Higher value at a lower cost
	VP 800 P	<ul style="list-style-type: none"> Heavy-duty non-chlorinated general purpose fluid 	<ul style="list-style-type: none"> Superior lubrication package Vapor phase inhibition 	<ul style="list-style-type: none"> Increased tool life and improved surface finish Less re-work and machine maintenance
	VPTECH P	<ul style="list-style-type: none"> Heavy-duty non-chlorinated general purpose fluid 	<ul style="list-style-type: none"> Chlorine-free Superior lubrication package 	<ul style="list-style-type: none"> Meets specific regulatory requirements Increased tool life and improved surface finish
	VP 850	<ul style="list-style-type: none"> Heavy-duty non-chlorinated general purpose fluid with low-foaming tendencies in all applications 	<ul style="list-style-type: none"> Chlorine-free Low-foaming in all applications 	<ul style="list-style-type: none"> Meets specific regulatory requirements Increased tool life and improved surface finish Low foaming fluid offers performance even in high pressure systems
	VP 690	<ul style="list-style-type: none"> Heavy-duty non-chlorinated general purpose fluid 	<ul style="list-style-type: none"> Excellent bio-resistance Excellent emulsion stability 	<ul style="list-style-type: none"> Prolonged sump life Increased tool life Improved Surface finish
	VP 855 P	<ul style="list-style-type: none"> Moderate to heavy-duty machining. 	<ul style="list-style-type: none"> Excellent foam suppression Chlorine-free 	<ul style="list-style-type: none"> Increased tool life and improved surface finish Reduced drag out
Heavy Duty	Aerotech B	<ul style="list-style-type: none"> High performance non-chlorinated machining fluid specifically designed for aerospace machining applications 	<ul style="list-style-type: none"> Resistant to ionic shock and hard water Superior lubricity due to its heavy-duty oil package 	<ul style="list-style-type: none"> Can be used in all aluminum machining applications and difficult steel applications Low foaming, no residue, excellent corrosion protection.

Product Offering - United States & Mexico Semi-Synthetic

Designation	Material #	Description/Container
VP700P-005B	7096844	5 Gal. Pail / Blue
VP700P-005U	7093710	5 Gal. Pail / Undyed
VP700P-055B	7096905	55 Gal. Drum / Blue
VP700P-055U	7093711	55 Gal. Drum / Undyed
VP700P-220B	7096906	220 Gal. Bulk-Con / Blue
VP700P-220U	7093712	220 Gal. Bulk-Con / Undyed
VP700P-275B	7096907	275 Gal. Bulk-Con / Blue
VP700P-275U	7093713	275 Gal. Bulk-Con / Undyed
VP800P-005B	7096952	5 Gal. Pail / Blue
VP800P-005U	7093717	5 Gal. Pail / Undyed
VP800P-055B	7097049	55 Gal. Drum / Blue
VP800P-055U	7093718	55 Gal. Drum / Undyed
VP800P-220B	7097101	220 Gal. Bulk-Con / Blue
VP800P-220U	7093719	220 Gal. Bulk-Con / Undyed
VP800P-275B	7097103	275 Gal. Bulk-Con / Blue
VP800P-275U	7093760	275 Gal. Bulk-Con / Undyed
VPTECHP-005B	7095279	5 Gal. Pail / Blue
VPTECHP-005U	7092611	5 Gal. Pail / Undyed
VPTECHP-055B	7095290	55 Gal. Drum / Blue
VPTECHP-055U	7092612	55 Gal. Drum / Undyed
VPTECHP-220B	7095291	220 Gal. Bulk-Con / Blue
VPTECHP-220U	7093383	220 Gal. Bulk-Con / Undyed
VPTECHP-275B	7095292	275 Gal. Bulk-Con / Blue
VPTECHP-275U	7093386	275 Gal. Bulk-Con / Undyed
VP850-005U	6772003	5 Gal. Pail / Undyed
VP850-055U	6772005	55 Gal. Drum / Undyed
VP850-220U	6772008	220 Gal. Bulk-Con / Undyed
VP850-275U	6772030	275 Gal. Bulk-Con / Undyed
VP690-005U	6771951	5 Gal. Pail / Undyed
VP690-055U	6771952	55 Gal. Drum / Undyed
VP690-220U	6771955	220 Gal. Bulk-Con / Undyed
VP690-275U	6771978	275 Gal. Bulk-Con / Undyed
AEROTECHB-005U	6772046	5 Gal. Pail / Undyed
AEROTECHB-055U	6772047	55 Gal. Drum / Undyed
AEROTECHB-220U	6772048	220 Gal. Bulk-Con / Undyed
AEROTECHB-275U	6772051	275 Gal. Bulk-Con / Undyed
VP855P-005B	7215329	5 Gal. Pail / Blue
VP855P-055B	7215541	55 Gal. Drum / Blue
VP855P-220B	7215542	220 Gal. Bulk-Con / Blue
VP855P-275B	7215547	275 Gal. Bulk-Con / Blue

Product Offering - Canada Semi-Synthetic

Designation	Material #	Description/Container
VP700PM-019B	7099026	19 Litre Pail / Blue
VP700PM-019U	7098121	19 Litre Pail / Undyed
VP700PM-205B	7099030	205 Litre Drum / Blue
VP700PM-205U	7098125	205 Litre Drum / Undyed
VP700PM-820B	7099032	820 Litre Bulk-Con / Blue
VP700PM-820U	7098126	820 Litre Bulk-Con / Undyed
VP800PM-019B	7099058	19 Litre Pail / Blue
VP800PM-019U	7098128	19 Litre Pail / Undyed
VP800PM-205B	7099070	205 Litre Drum / Blue
VP800PM-205U	7098130	205 Litre Drum / Undyed
VP800PM-820B	7099072	820 Litre Bulk-Con / Blue
VP800PM-820U	7098132	820 Litre Bulk-Con / Undyed
VPTECHPM-019B	7098977	19 Litre Pail / Blue
VPTECHPM-019U	7098097	19 Litre Pail / Undyed
VPTECHPM-205B	7099016	205 Litre Drum / Blue
VPTECHPM-205U	7098099	205 Litre Drum / Undyed
VPTECHPM-820B	7099017	820 Litre Bulk-Con / Blue
VPTECHPM-820U	7098120	820 Litre Bulk-Con / Undyed
VP850M019U	6772035	19 Litre Pail / Undyed
VP850M205U	6772040	205 Litre Drum / Undyed
VP850M820U	6772043	820 Litre Bulk-Con / Undyed
VP690M019U	6771991	19 Litre Pail / Undyed
VP690M205U	6771995	205 Litre Drum / Undyed
VP690M820U	6771998	820 Litre Bulk-Con / Undyed
AEROTECHBM019U	6772053	19 Litre Pail / Undyed
AEROTECHBM205U	6772056	205 Litre Drum / Undyed
AEROTECHBM820U	6772057	820 Litre Bulk-Con / Undyed
VP855PM-019B	7215548	19 Litre Pail / Blue
VP855PM-205B	7215549	205 Litre Drum / Blue
VP855PM-820B	7215570	820 Litre Bulk-Con / Blue

SOLUBLE OIL

Provides the highest level of lubrication and excellent rust control.

	Product	Description	Characteristics	Benefit
Light Duty ↕ Heavy Duty	VP 650 P	<ul style="list-style-type: none"> Premium heavy-duty chlorinated soluble oil 	<ul style="list-style-type: none"> Contains a synthetic ester that enhances bio-stability and corrosion protection 	<ul style="list-style-type: none"> Increased tool life, surface finish and sump life

Product Offering - United States & Mexico Soluble Oil

Designation	Material #	Description/Container
VP650P-005B	7097680	5 Gal. Pail / Blue
VP650P-005U	7094804	5 Gal. Pail / Undyed
VP650P-055B	7097682	55 Gal. Drum / Blue
VP650P-055U	7094805	55 Gal. Drum / Undyed
VP650P-220B	7097684	220 Gal. Bulk-Con / Blue
VP650P-220U	7094806	220 Gal. Bulk-Con / Undyed
VP650P-275B	7097687	275 Gal. Bulk-Con / Blue
VP650P-275U	7094892	275 Gal. Bulk-Con / Undyed

Product Offering - Canada Soluble Oil

Designation	Material #	Description/Container
VP650PM-019B	7099276	19 Litre Pail / Blue
VP650PM-019U	7098216	19 Litre Pail / Undyed
VP650PM-205B	7099279	205 Litre Drum / Blue
VP650PM-205U	7098219	205 Litre Drum / Undyed
VP650PM-820B	7099280	820 Litre Bulk-Con / Blue
VP650PM-820U	7098221	820 Litre Bulk-Con / Undyed

SYNTHETIC

Formulated for high speed applications, our synthetics provide the highest level of cooling and stability.

	Product	Description	Characteristics	Benefit
Light Duty ↑ ↓ Heavy Duty	VP 910 P	<ul style="list-style-type: none"> Heavy duty synthetic for machining and grinding 	<ul style="list-style-type: none"> Designed for a wide range of applications Chlorine-free 	<ul style="list-style-type: none"> Less inventory of fluids Meets specific regulatory requirements
	VP 920 P	<ul style="list-style-type: none"> General-purpose synthetic for grinding and light machining 	<ul style="list-style-type: none"> Most economical synthetic Chlorine-free 	<ul style="list-style-type: none"> Low-cost, high value Meets specific regulatory requirements
	VP 930	<ul style="list-style-type: none"> High performance, heavy-duty machining and grinding fluid, specifically designed for difficult to machine ferrous metals 	<ul style="list-style-type: none"> Chlorine-free Use for machining and grinding 	<ul style="list-style-type: none"> Extended tool life Low foaming Hard water stable
Carbide Grinding	VP 940 P	<ul style="list-style-type: none"> Heavy-duty multi-purpose synthetic 	<ul style="list-style-type: none"> Chlorine-free Special cobalt leaching inhibitors Unique extreme pressure package 	<ul style="list-style-type: none"> Meets specific regulatory requirements Prevents cobalt leaching for carbide grinding Suitable for aerospace applications

Product Offering - United States & Mexico Synthetic

Designation	Material #	Description/Container
VP910P-005B	7097130	5 Gal. Pail / Blue
VP910P-005U	7094279	5 Gal. Pail / Undyed
VP910P-055B	7097133	55 Gal. Drum / Blue
VP910P-055U	7094350	55 Gal. Drum / Undyed
VP910P-220B	7097134	220 Gal. Bulk-Con / Blue
VP910P-220U	7094351	220 Gal. Bulk-Con / Undyed
VP910P-275B	7097135	275 Gal. Bulk-Con / Blue
VP910P-275U	7094352	275 Gal. Bulk-Con / Undyed
VP920P-005B	7097651	5 Gal. Pail / Blue
VP920P-005U	7094356	5 Gal. Pail / Undyed
VP920P-055B	7097652	55 Gal. Drum / Blue
VP920P-055U	7094357	55 Gal. Drum / Undyed
VP920P-220B	7097653	220 Gal. Bulk-Con / Blue
VP920P-220U	7094358	220 Gal. Bulk-Con / Undyed
VP920P-275B	7097655	275 Gal. Bulk-Con / Blue
VP920P-275U	7094359	275 Gal. Bulk-Con / Undyed
VP930-005U	6841210	5 Gal. Pail / Undyed
VP930-055U	6841214	55 Gal. Drum / Undyed
VP930-220U	6841217	220 Gal. Bulk-Con / Undyed
VP930-275U	6841342	275 Gal. Bulk-Con / Undyed
VP940P-005B	7098019	5 Gal. Pail / Blue
VP940P-005U	7094894	5 Gal. Pail / Undyed
VP940P-055B	7098021	55 Gal. Drum / Blue
VP940P-055U	7095040	55 Gal. Drum / Undyed
VP940P-220B	7098022	220 Gal. Bulk-Con / Blue
VP940P-220U	7095042	220 Gal. Bulk-Con / Undyed
VP940P-275B	7098023	275 Gal. Bulk-Con / Blue
VP940P-275U	7095043	275 Gal. Bulk-Con / Undyed

Product Offering - Canada Synthetic

Designation	Material #	Description/Container
VP910PM-019B	7099075	19 Litre Pail / Blue
VP910PM-019U	7098135	19 Litre Pail / Undyed
VP910PM-205B	7099077	205 Litre Drum / Blue
VP910PM-205U	7098136	205 Litre Drum / Undyed
VP910PM-820B	7099078	820 Litre Bulk-Con / Blue
VP910PM-820U	7098137	820 Litre Bulk-Con / Undyed
VP920PM-019B	7099083	19 Litre Pail / Blue
VP920PM-019U	7098138	19 Litre Pail / Undyed
VP920PM-205B	7099271	205 Litre Drum / Blue
VP920PM-205U	7098139	205 Litre Drum / Undyed
VP920PM-820B	7099274	820 Litre Bulk-Con / Blue
VP920PM-820U	7098153	820 Litre Bulk-Con / Undyed
VP930M019U	6841343	19 Litre Pail / Undyed
VP930M205U	6841344	205 Litre Drum / Undyed
VP930M820U	6841345	820 Litre Bulk-Con / Undyed
VP940PM-019B	7099283	19 Litre Pail / Blue
VP940PM-019U	7098279	19 Litre Pail / Undyed
VP940PM-205B	7099285	205 Litre Drum / Blue
VP940PM-205U	7098309	205 Litre Drum / Undyed
VP940PM-820B	7099287	820 Litre Bulk-Con / Blue
VP940PM-820U	7098330	820 Litre Bulk-Con / Undyed

SPECIALTY FLUIDS

Product	Description	Directions	Use
Val Tap	<p>Liquid tapping compound</p> <ul style="list-style-type: none"> • Contains extreme pressure lubricants, which form a solid lubricant between the chip and the tool, eliminating chip welding and broken taps • Effective on both ferrous and non-ferrous materials 	<ul style="list-style-type: none"> • Use in undiluted form. Apply directly to the workpiece material before or during the tapping operation • Caution: Avoid prolonged contact • May cause staining of some aluminum alloys 	<ul style="list-style-type: none"> • Use in place of MQL when MQL option isn't available • Useful in manual machines

Product Offering - United States & Mexico Specialty Fluids

Designation	Material #	Description/Container
VPTap Case12B	7215328	Case of (12) 16-oz squeeze bottles / Undyed

Product Offering - Canada Specialty Fluids

Designation	Material #	Description/Container
VPTapM Case12B	7215572	Case of (12) 16-oz squeeze bottles / Undyed

CLEANERS

Product	Description	Directions	Use
VAL-U-CLEAN-VP	<p>All-purpose alkaline cleaner</p> <ul style="list-style-type: none"> Contains a biocide that helps eliminate lingering bacteria, especially during a machine tool clean-out, for a fresh cutting fluid charge Includes a rust inhibitor to protect the machine tool from corrosion during the cleaning process 	<ul style="list-style-type: none"> Use to clean the machine tool and sump for a new cutting fluid charge, or use as a general purpose shop cleaner Use at a 2% – 5% dilution with water, depending on the severity of the cleaning job and cleaning time 	<ul style="list-style-type: none"> For machines with mild to moderate residue buildup From none to low biologic issues
K-5-P	<p>Heavy-duty, general-purpose, nitrite free, alkaline, synthetic cleaner</p> <ul style="list-style-type: none"> Contains corrosion inhibiting ingredients to protect machines and parts from rust during cleaning process Suitable for use with all fluids Recommended for cleaning individual machines and central systems Handles the toughest cleaning jobs, such as decontaminating and removing insoluble soaps from dirty central systems in hard water areas 	<ul style="list-style-type: none"> Use at a 2% - 5% dilution with water, depending on the severity of the cleaning job and cleaning time May stain some aluminum 	<ul style="list-style-type: none"> For machines with moderate to severe residue buildup From moderate to heavy biologic issues

Product Offering - United States & Mexico Cleaners

Designation	Material #	Description/Container
VAL-U-CLEAN-VP-005U	7095164	5 Gal. Pail / Undyed
VAL-U-CLEAN-VP-055U	7095165	55 Gal. Drum / Undyed
VAL-U-CLEAN-VP-6X1	7095163	6 one gallon bottle / Undyed
K-5-P-005U	7095272	5 Gal. Pail / Undyed
K-5-P-055U	7095273	55 Gal. Drum / Undyed
K-5-P-6X1	7095271	Case of 6 1-gal Bottles / Undyed

Product Offering - Canada Cleaners

Designation	Material #	Description/Container
VAL-U-CLEAN-VPM-019U	7098936	19 Litre Pail / Undyed
VAL-U-CLEAN-VPM-205U	7098937	205 Litre Drum / Undyed
VAL-U-CLEAN-VPM-6 X 3.8	7098932	Case of 6 3.8-litre Bottles / Undyed
K-5-PM-019U	7098951	19 Litre Pail / Undyed
K-5-PM-205U	7098952	205 Litre Drum / Undyed
K-5-PM-6 X 3.8	7098938	Case of 6 3.8-litre Bottles / Undyed

ADDITIVES

Product	Description	Directions	Uses
Defoamer P	<ul style="list-style-type: none"> • Silicon free • Prevents excessive foaming 	<ul style="list-style-type: none"> • Apply as directed into the sump of the machine 	<ul style="list-style-type: none"> • Can be used in all ISO materials
Maintainer P	<ul style="list-style-type: none"> • pH booster • Rust inhibitor enhancer • Increases bio stability • Disinfects 	<ul style="list-style-type: none"> • 1 gallon per 100 gallons of sump size 	<ul style="list-style-type: none"> • Can be used in all ISO materials

Product Offering - United States Additives

Designation	Material #	Description/Container
DEFOAMER-P-12X1	7095277	Case of 12 1-qt Bottles / Undyed
MAINTAINER-P-6X1	7095278	Case of 6 1-gal Bottles / Undyed

Product Offering - Canada & Mexico Additives

Designation	Material #	Description/Container
DEFOAMER-PM-12 X 1	7098958	Case of 12 1-qt Bottles / Undyed
MAINTAINER-PM-6 X 3.8	7098959	Case of 6 3.8-litre Bottles / Undyed

TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS	SEE DETAILS
Foaming	• Concentration too high	• Adjust concentration*	1
	• Excessive Pressure / Agitation	• Convert current product to coolant with high pressure capabilities	-
	• Machine cleaner in sump	• Check pH level	3
		• Allow machine to run, cleaner should dissipate*	-
	• Mechanical (crack in hose, sump level too low, crack in pump, pump pressure too high) Restricted Intake	• Check machinery and repair as required	-
	• Soft water	• Sample water, treat if necessary	-
	• High tramp oil content	• Skim off oil* • Check hydraulic lines for leaks, and repair as required	4
• Equipment design	• Check system for point of agitation	-	

PROBLEM	CAUSES	SOLUTIONS	SEE DETAILS
Rusting	• Concentration too low • pH too low	• Adjust concentration*	2
		• Adjust pH level	3
	• Poor mixing (soluble oil)	• Add concentrate to water*	1
	• High tramp oil content • High bacteria count	• Skim off oil*	4
		• Check hydraulic lines for leaks, and repair as required	4
	• Dump, clean and recharge system	-	

PROBLEM	CAUSES	SOLUTIONS	SEE DETAILS
Poor Tool Life	• Concentration too low	• Adjust concentration*	1
	• Wrong product being used	• Contact ValCOOL, LLC at 800-244-9004 for information	-
	• Large amounts of biocide added to sump or system	• Contact ValCOOL, LLC at 800-244-9004 for information	-
	• High tramp oil content	• Skim off oil*	4
		• Check hydraulic lines for leaks, and repair as required	4
	• Air In coolant	• Check for mechanical problems	-
• Incorrect application	• Make sure coolant is directed at tool	-	

PROBLEM	CAUSES	SOLUTIONS	SEE DETAILS
Odor	• Low concentration	• Adjust concentration*	1
	• Low pH	• Check pH then contact a ValCOOL, LLC representative for further instructions	3
	• High tramp oil content	• Skim off oil*	4
		• Check hydraulic lines for leaks, and repair as required	4
	• Contamination	• Submit cutting fluid sample to a ValCOOL, LLC representative	-
• Chips and swarf build-up	• Thoroughly clean sump and machine, and fill with fresh fluid	-	

*Refer to fluid maintenance Tips & Techniques on page 14-15.

TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS	SEE DETAILS
Skin Irritation	• High concentration	• Adjust concentration*	1 5
	• High pH	• Check pH then contact a ValCOOL, LLC representative for further instructions	3 5
	• High tramp oil content	• Skim off oil*	4 5
		• Check hydraulic lines for leaks, and repair as required	4 5
	• Dirty shop cloths	• Use only clean cloths	-
	• Allergies	• Have workers checked for allergies and contact physician if necessary	-
	• Out-of-shop influences	• Check pH then contact a ValCOOL, LLC representative for further instructions	3
	• Material contaminate	• Skim off floating debris and clear chips	-

PROBLEM	CAUSES	SOLUTIONS	SEE DETAILS
Residue in Machine	• High concentration	• Adjust concentration*	1
	• High tramp oil content	• Skim off oil*	4
		• Check hydraulic lines for leaks, and repair as required	4
	• Incorrect mixing	• Submit cutting fluid sample to a ValCOOL, LLC representative	1
	• High misting operations	• Check ventilation system	-
		• Adjust coolant nozzle(s)	-

*Refer to fluid maintenance Tips & Techniques on page 14-15.

SOLUTION DETAILS		PRODUCTS TO USE
1	<p>Efficiently mix coolant concentrates with water.</p> <ul style="list-style-type: none"> • Always add concentrate to water, never the other way. Mix by hand, or with a slow speed mechanical agitator. 	<ul style="list-style-type: none"> • Use a proportioner for “charging” and “make-up” dilutions • Check pH level • Coolant Mixer
2	<p>Check fluid concentration</p> <ul style="list-style-type: none"> • Checking concentration is one of the most important maintenance functions. 	<ul style="list-style-type: none"> • Refractometer, a hand-held instrument to measure actual mix concentration.
3	<p>Check fluid mix pH</p> <ul style="list-style-type: none"> • pH control is critical to maximizing fluid life and performance. Optimum pH range - 8.8 to 9.2. 	<ul style="list-style-type: none"> • Electronic pH Meter. • pH Test Strips to measure fluids in the 8.0 to 9.7 range.
4	<p>Control tramp oil</p> <ul style="list-style-type: none"> • Check and maintain your machines on a regular schedule • Use extreme care in lubricating or filling hydraulic systems 	<ul style="list-style-type: none"> • Sidewinder Skimmer for access to impaired sumps. • Smart Skimmer with integral gravity separator. • Belt Skimmers • Belt Skimmers Diverter only. • Standard Skimmer
5	<p>Control bacteria growth</p> <ul style="list-style-type: none"> • Add oxygen to the sump to kill anaerobic bacteria • Keep sumps clean. Maintain proper cutting fluid concentration and pH • Remove tramp oil 	<ul style="list-style-type: none"> • Oxygenator • Refractometer

FLUID MAINTENANCE TIPS & TECHNIQUES

Care and Handling of ValCOOL® Products

As with all cutting fluids, proper care and handling of ValCOOL® products involves several important factors, including storage, mixing, bacteria control, tramp oil control, application to the cutting zone, and proper disposal. If you read and follow this list of care and handling recommendations, you will maximize the safety, life and usefulness of all your ValCOOL® cutting fluids.

STORAGE

- Store in clean sealable drums, clearly marked, protected from frost or sunlight, and preferably indoors.
- Have adequate ventilation and fire extinguishers in the storage area.
- Clean up spills with inert, mineral absorbent materials.
- Keep strong oxidizing agents out of the storage area.
- Do not use sawdust or oily cotton waste for spill control.

WATER HARDNESS

- Water hardness is a measure of the amount of inorganic salts (calcium and magnesium) in the water.
- Reacts with lubricants to produce soap scum.
- Reacts with cutting fluids to break down the emulsion.
- Water treatment methods are advisable.

BACTERIA CONTROL

Bacteria feed on the fatty components, corrosion inhibitors and other components of the emulsion, which causes a chemical change that makes the emulsion more acidic.

Foul sulfide odors are produced in the low oxygen emulsions.

To reduce bacteria growth, use an aerator, keep the sump clean, maintain proper concentration, remove surface or tramp oil, and add biocides.

Mixing Water-Dilutable Concentrates

- The oil concentrate must be added to the water. (Remember: **OIL = Oil-In-Last**)
- Measure the water into a clean tank.
- Measure the required volume of concentrate and gradually pour it into the water.
- Keep mixing while pouring.
- A slow speed mechanical agitation is preferred.
- Use a suitable mixing unit or proportioner.

WATER HARDNESS CHART		
Water Type	Parts Per Million	Grains (1GR = 17PPM)
Soft	0-50	0-3
Moderately Soft	50-100	3-6
Slightly Hard	100-150	6-9
Moderately Hard	150-200	9-12
Hard	200-300	12-18
Very Hard	Over 300	Over 18

FLUID MAINTENANCE TIPS & TECHNIQUES

CONTROL OF TRAMP OIL

- Employ regular checks and proper maintenance of machinery.
- Use care when lubricating or filling up hydraulic systems.
- Use of oil wheel and belt skimmers is advisable.

DEBRIS AND DIRT

- In machine tools, basic sieves and traps are usually sufficient, larger swarf separates out by gravity.
- Special systems may be required for cleaning grinding debris, dirt, and suspended materials from high finish applications.

DISPOSING OF METALWORKING FLUIDS

- It is crucial to fully comply with federal, state and local regulations.
- Methods used to treat waste fluids depend on the type of product.
- In water dilutable coolants, the water (90-95% of volume) can be removed and the remaining solids are disposed.
- Wastewater treatment is divided into three tiers:

Primary, Secondary, and Tertiary stages

- **Primary:** removing free oil (skimming) and suspended solids (filtration and settling)
- **Secondary:** ultrafiltration (cross-flow to remove oil and solids), chemical treatment (most common way to split fluids - aluminum sulfate)
- **Tertiary** (carbon filtration and reverse osmosis)

DELIVERY TO THE CUTTING ZONE

- Trouble spots to check include:
 - State of the cutting fluid
 - Flow rate
 - Accurate delivery to the cutting zone
 - Machining speed
 - Condition of the cutting tool
 - Sump size
- Proper fluid flow is:
2.5 - 3.0 gal. per min. per H.P.



CLEAN-OUT PROCEDURE

Central System and Individual Machine Reservoirs

Clean metalworking fluid performs better and lasts longer than dirty or contaminated fluid. When recharging an individual machine or central system fluid tank, a proper clean-out of the tank is necessary. A thorough cleaning will allow the fresh charge of metalworking fluid to perform with maximum efficiency. If not removed, the metal swarf, oil, mold and bacteria will cause deterioration of the fresh mix. The following clean-out procedure should be used whenever possible.

PREFERRED CLEAN-OUT PROCEDURE

1. Drain the central system or individual tank completely.
2. Remove all metal swarf and debris from sumps, return trenches, oil pans, and filtration units.
3. Fill the machine with water and circulate through all lines and machines. Warm water is desirable, but is not absolutely necessary.
4. Add Val-U-Clean-VP cleaner at 2-4% and circulate for 4 to 8 hours. As the cleaner circulates, clean all chip conveyers, screens, pans, and enclosed areas. **DO NOT ADD BLEACH OR OTHER HOUSEHOLD CLEANERS.** This will cause rusting and shorten the life of the coolant. If the coolant has a large amount of bacterial growth, a biocide can be added to the cleaner and flushed through the system.
5. It is suggested to steam clean areas where suspected accumulation of swarf and oil may not have been removed by the cleaner.
6. After the cleaning is complete, drain the Val-U-Clean-VP mix from the system.
7. Refill with fresh water and circulate throughout the system or tank(s) to flush all traces of cleaner and swarf from the system. Drain all lines and sumps. If the rinse water is exceptionally dirty, rinse a second time.
8. Charge the system with fresh water.
9. Add enough ValCOOL® concentrate to reach the recommended concentration.
10. Circulate through the system to insure proper mixing.

Alternate Clean-out Procedure

With Used Fluid- During Shutdown

After production stops, add one gallon Val-U-Clean-VP to each 50 gallons of dirty fluid in the machine reservoir or central system. Circulate the mixture for 4 hours or longer through all lines and machine tools. Drain, rinse, and recharge with a fresh ValCOOL® mix.

WARNING! Val-U-Clean-VP is alkaline. Protective gloves and safety glasses should be worn by maintenance personnel during this operation. Prolonged contact with the skin may cause irritation.

TRADITIONAL PACKAGING - NON-RETURNABLE



- 16 oz squeeze bottle**
 – 1.5 lbs
 – For VPTap only



- 5 gallon pail (19 liters)**
 – 50 lbs
 – Easy to handle
 – Perfect for smaller machine shops and small applications



- 1 quart bottle**
 – 2 lbs
 – Used with Defoamer only



- 55 gallon drum (205 liters)**
 – 500 lbs
 – Standard container



- 1 gallon bottle**
 – 9 lbs
 – Offered with standard and heavy-duty machine cleaners and Conditioner



- 220 gallon disposable bulk container (832 liters)**
 – 2300 lbs
 – An intermediate bulk shipper completely recyclable, biodegradable and waste-to-energy efficient.
 – Stacks up to four high on sturdy pallets for maximum space utilization.
 – One compact container carries as much as four steel drums.
 – Better insulation properties, containers are approximately seven times better at maintaining product temperature.
 – Seamless construction for up to 40,000 lbs compression.
 – Easy dispensing from top or side of box.
 – Available in 220 gallon container (equivalent to four drums of coolant).



- 275 gallon reusable bin**
 – 2875 lbs
 – Great for large production environments, Chemical resistant
 – 2" Ball valve opening, Typically a Camlock connection
 – Durable One-Way Tote
 – Metal cage for support
 – On a wood pallet for easy moving and stability

GLOSSARY

ALKALINE

Having a pH of more than 7.0 which is the neutral point.

BACTERIA

Feed on fatty components, corrosion inhibitors and other components of the emulsion. Grow in emulsions where the oxygen content is low. This produces sulfide gases and odors.

BUILD-UP EDGE (BUE)

The pressure welding of the workpiece material to the top of the tool.

CHIPS

Small pieces of metal removed from a workpiece by a cutting tool.

CONCENTRATE

Agents and additives that, when added to water, create a cutting fluid.

CONCENTRATION

The amount of a fluid's concentrate diluted in water.

COOLING

Reducing the amount of heat going to the tool and workpiece material in the cutting process.

CORROSION PREVENTION

Fluid used to protect parts and machinery from corrosion.

CORROSION PROTECTION

Protection for the tools and machinery from rusting and deterioration.

COUPLERS

Mutual solvents which make oil and soap compatible.

EMULSION

Oil droplets suspended and scattered throughout the water.

EP SOLUBLE OILS

Extreme Pressure (EP) oils, contain sulfur and/or chlorine to improve cooling in machining operations.

EXTREME PRESSURE ADDITIVE

Cutting fluid additive that chemically reacts with the workpiece material to minimize chip welding.

FOAMING

Trapping of air bubbles in the cutting fluid.

pH VALUE

A way of measuring the acidity or alkalinity of a fluid.



RESIDUE

By-product of the machining operation caused by the workpiece, tool and cutting fluid.

SEMI-SYNTHETIC FLUIDS

Mixture of oils, synthetic emulsifiers and water.

SOLUBLE OILS

Oils that disperse in water when emulsifiers are added.

SWARF

Grinding debris and dirt causing problems with the grinding operations.

SYNTHETIC CUTTING FLUIDS

Completely oil free solutions of polymers, organic and inorganic materials mixed with water.

TRAMP OIL

Machine oil which seeps, leaks or spills into the cutting fluid system.

VISCOSITY

The degree to which a fluid resists flow under an applied force.

WATER HARDNESS

Amount of inorganic salts dissolved in the water which reacts with soaps to produce scum.

Visit our web site at www.valcool.com

For more safety information visit: www.osha.gov/SLTC/metalworkingfluids/metalworkingfluids_manual.html

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WARNING: Cutting tools may chip or fragment in use. Always use appropriate machine guards, protective clothing and safety glasses to prevent burns or other injury to body or eyes from flying particles or chips. Wet or dry grinding produces potentially hazardous dusts or mists; to avoid adverse health effects use adequate ventilation and read material safety data sheet before grinding. This product contains cobalt and/or nickel, chemicals which are "known to the state of California to cause cancer and birth defects (or other reproductive harm)."

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