

EDUCATION COMMITTEE

Northern California Chapter – American Vacuum Society

110 Yellowstone Dr, Suite 120, Chico, CA 95973 – Ph (530) 896-0477, FAX (530) 896-0487, della@avs.org

YOUR ROTARY VACUUM PUMP and OIL

The oil in your school's vacuum pump provides many functions in the operation of this device. So proper maintenance is critical for good vacuum operation. This sheet is intended to provide you with general information, regardless of pump make and model, for proper care and feeding of your pump. Assuming that the pump is in good operating condition, mechanically, the oil level may need to be adjusted, or changed. **CAUTION:** If your pump is a belt drive unit, from a separate motor, make certain the belt guard is properly mounted, for safety of the students!

With the vacuum pump inlet sealed off, or closed, start up your pump, and let it operate for 15 to 20 minutes, pumping on itself. This will bring the temperature of the pump up to its normal operating level. Now check the oil level in the pump. It should be in the middle of the sight glass, or inspection port. If you cannot see the oil level, try carefully and slowly raising the end of the pump, opposite the oil level/inspection port. If the oil level is an inch or two low, it may just need some addition.

However, if the oil is dark brown in color, or worse, like black coffee, it should be replaced (see Color Chart at end of this document). Have a suitable volume container (usually 16 to 24 ounces in volume) placed below the drain plug or valve, near the bottom of the pump. **CAUTION:** The pump oil temperature by this point may be in the range of 140°F to 160°F, so protect your hands! Turn off the pump, immediately open the inlet, then open the drain plug/valve at the bottom of the bottom. The hot oil will flow horizontally for 3 or 4 inches. When the oil flow is down to just a drip every few seconds, place a rag or paper towel, directly in front of the drain, and turn on the pump for 4 to 5 seconds. This will expel any additional oil that might be in the mechanism. Remember, oil being incompressible, can squirt out the drain hole, so protect yourself. Now, close the drain port, and refill the pump, through the fill port on the top of the pump, with a fresh charge of the proper vacuum pump oil (see paragraph below), to the middle of the sight glass. Close the fill port, reseal the inlet of the pump, and restart it. You may notice that the oil level drops in the pump. Wait 5-10 minutes, then shut off the pump, open the inlet, and add enough oil at the fill port, to bring it to the middle of the sight.

VACUUM PUMP OIL

Oil used in rotary vacuum pumps is a special product, vastly different from motor oil. There are no additives such as rust inhibitors used in pump oil since such agents would be separated from the base fluid and plate out on surfaces as gummy substances. Good vacuum pump oil is general 8 to 10 times the cost of motor oil, but is necessary for proper pump operation!



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SUPPLIERS of PUMP OIL, INSPECTION and SERVICE

Where marked X: *Oil* means fluid is available in quart containers at that location; *Inspect* means pump inspection if you deliver/pickup pump, or prepay same. The cost may be free or at nominal charge. *Service* means they will charge a special commercial fee to flush/adjust/change oil, if you deliver/pickup, or prepay same. Those marked * are pump manufacturers; they will only service their pump brands, and at the list price.

<i>Company</i>	<i>Oil</i>	<i>Inspect</i>	<i>Service</i>
Alcatel Vacuum Products – 46405 Landing Pkwy Fremont, CA 94538 Phone 510-445-1200	X		X*
BOC Edwards Inc – 3901 Burton Dr Santa Clara, CA 95054 Phone 800-848-9800	X		X*
[Cenco] Hyvac Products Inc – 201 N. Fifth St Royersford, PA 19468 Phone 800-628-0850	X		X*
Duniway Stockroom – 1305 Space Park Way Mt View, CA 94043 Phone 800-446-8811	X	X	X
FMG Enterprises Inc – 1125 Memorex Dr Santa Clara, CA 95050 Phone 408-982-0110	X		X
Kurt J Lesker Co – 3983 First St Livermore, CA 94551 Phone 800-245-1656	X		
Leybold Vacuum USA – 5700 Mellon Rd Export, PA 15632 Phone 800-327-5700	X		X*
Pat Patteson Assoc – 135B Lindbergh Ave Livermore, CA 94550 Phone 925-371-6176	X	X	X
Pfeiffer Vacuum Inc – 562 Gibraltar Dr Milpitas, CA 95035 Phone 408-956-2578	X		X*
Phoenix Vacuum Technologies – 2899 Aiello Dr San Jose, CA 95111 Phone 408-225-7500			X
ProVac Sales Co – 2535 7th Ave, Suite 4 Santa Cruz, CA 95062 Phone 831-462-8900	X		X
Pumps International – 18675 Adams Ct Morgan Hill, CA 95037 Phone 408-776-0259	X	X	X
Science Shop – 1043 DiGulio St San Jose, CA 95050 Phone 408-748-1373	X		
Varian Vacuum Products – 121 Hartwell Ave Lexington, MA 02421 Phone 800-882-7426	X		X*
Welch Vacuum – 7300 N Linder Ave Skokie, IL 60077 Phone 847-677-0600	X		X*

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SUPPLIERS of BELLJARS, TUBING, FITTINGS, OTHER ACCESSORIES

<i>Company</i>	<i>Bell Jar</i>	<i>Tubing</i>	<i>Accessories</i>	<i>KF™ fittings</i>
Duniway Stockroom –1305 Space Park Way Mt. View, CA 94043 Phone 800-446-8811	X	X		X
Fisher Science Education – 4500 Turnberry Dr Hanover Park, IL 60133 Phone 630-259-4770	X	X	X	X
Flinn Scientific – P O Box 219 Batavia, IL 60510 Phone 800-452-1261	X		X	
Kurt Lesker Co – 3983 First St Livermore, CA 94550 Phone 800-245-1656		X	X	X
MDC Vacuum Products – 23842 Cabot Blvd Hayward, CA 94545 Phone 800-443-8817			X	X
Nalgene Process Technologies – 29 Brookfield Dr Lafayette, NJ 07848 Phone 800-988-4876	X			
Nasco Science – 4825 Stoddard Rd Modesto, CA 95356 Phone 209-545-1600	X	X	X	
Nor-Cal Products Inc – 1967 S Oregon St Yreka, CA 96097 Phone 530-842-4457			X	X
Pasco Scientific – 10101 Foothills Blvd Roseville, CA 95747 Phone 800-772-8700	X	X	X	
Pumps International – 18675 Adams Ct Morgan Hill, CA 95037 Phone 408-776-0259				X
Science First – 95 Botsford Place Buffalo, NY 14216 Phone 800-875-3214	X	X	X	X
Science Kit – 777 E Park Dr Tonawanda, NY 14151	X	X	X	
Science Shop Co. – 1043 DiGulio St San Jose, CA 95050 Phone 408-748-1373	X	X	X	
Welch Vacuum – 7300 N Linder Ave Skokie, IL 60077 Phone 847-677-0600	X	X		X

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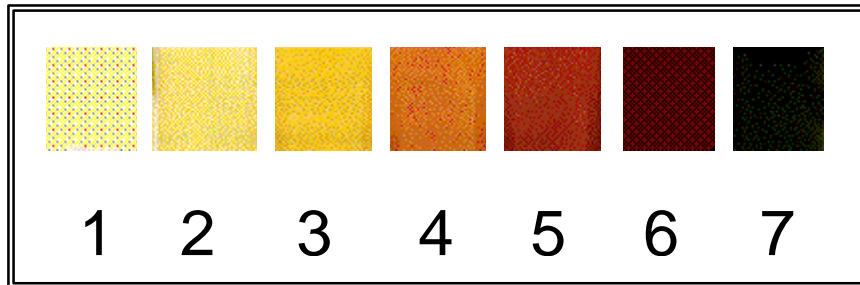
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Rotary Pump Oil Condition Chart

The color chart below indicates the degree of thermal ageing & therefore the remaining useful life of the oil in your rotary pump.



Oil should be changed before it has reached color 4. If the oil is allowed to degrade to the extent that colors 6 & 7 are reached, the pump may have suffered damage & should be fully serviced prior to re-use.

1	Pantone	1205 U
2	Pantone	127 U
3	Pantone	141 U
4	Pantone	173 U
5	Pantone	1085 U
6	Pantone	187 U
7	Pantone	Black 5 U 2X

Chart supplied by J. L. Hall and T. Stec, BOC Edwards.

