



President's Letter

Superfilers

**David Weathers,
Armstrong Wood Products**



This is David Weathers looking very professional and dignified as he should since he is an extremely good filer. However David is also a lot of fun. He is the one who pointed out to me that work can be really hard and that he tries to spread some joy as he goes though the day.

He called Emily to make some comments on something I wrote. Please see the following.

Correction / Clarification



I ran the following in May as part of an article on inspecting saw blades. "There are no cracks – not even microscopic cracks. A cracked saw is dangerous. Shoulder rebuilds are acceptable and good practice." See P. 2

Carbide Processors, Inc.

Northwest Research Institute, Inc.

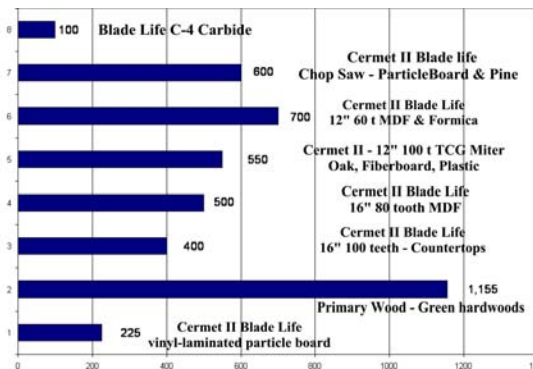
Newsletter July, 2006

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sales@carbideprocessors.com www.carbideprocessors.com

Cermet II

**Cermet II Grades Stay Sharper
Longer Than C-4 Carbide (P. 3)**



Cermet II comes in several grades. We have been working with the original steel cutting grades of cermets for about five years and we now have tried and proven second generation materials.

Sawmill Grades

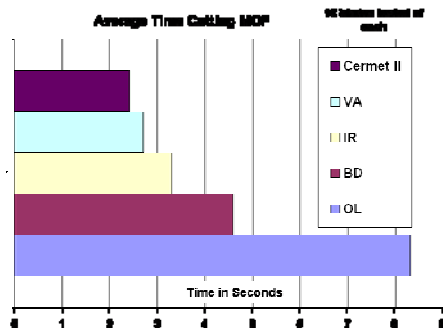
Now we have sawmill grades that take the place of ordinary grades C-1 though C-3.

Wood and Manmade Materials

We also have grades that work much, much better than c-4 grades in manmade materials.

Cermet II

**Cermet II Grades Cut Faster and
Easier Than C-4 Carbide**



See P. 3 for bigger graphs and more information.

Flux Coated Wire

**Braze Alloys
New & Really Good**



The idea is simple and has been around a long time. Many shops coat their own rod by dipping it in flux and letting it dry. There are several problems with this. Quality is always uncertain and the dried flux coating is very, very fragile. Besides rods are expensive. You always have the stub end which is hard to use.



A coating that sticks the way it should

A little over a year ago we started testing this product and working with our supplier to get it right. We had to have a coating that would stay on during processing and yet still come off clean during brazing. The coating we have now can be scraped off with a knife but, as you can see by the picture, you can bend it completely over and it still sticks. This is available in any alloy with any thickness of flux coating you wish. If you want a sample, please call Emily at (800) 346-8274.



We also offer braze alloys as flattened wire and other special shapes.

First I wasn't clear that trying to fix cracks like these is always dangerous. Many folks still drill a hole at the end of the crack but the practice is rapidly disappearing. I know that many, top end saw shops feel it is illegal to repair a blade such as this due to OSHA regulations. Somewhere I have copy of the regulation or you can look it up yourself.

Second, I mentioned that "Shoulder rebuilds are acceptable and good practice." Some places they still are however what follows are comments from David Weathers

David said they quit doing those 10 years ago because the risk is too high. He mentioned it could come down to buying a new \$80.00 - \$100.00 saw as compared to having someone injured or killed.

He loves the newsletter and always reads it thru and rarely disagrees with you, but he wanted to let us know he doesn't think it's a good practice these days.

Theoretically it is possible to rebuild a shoulder satisfactorily. Actual practice may be an entirely different matter. In addition the question comes up as to whether it is worth doing economically. Besides the time needed to rebuild the shoulder there is also the possibility of increased downtime.

Finally there is the issue of injuring or killing an employee.

We agree with David Weathers that killing an employee, or even injuring one, is just not a good idea. Outside of the moral and ethical issues it is just not a good way to run a business from a financial standpoint.

Norm Brown of Simonds International agreed with David Weathers. Norm felt that you shouldn't do it. Outside of the risk to equipment and employees and the liability for damage you are doing a lot of work for a \$70 or \$100 blade and greatly increasing the risk of downtime.

David and Norm are both very busy and I thank them for taking the time to share their expertise on this.

Classy Guys

**Eric Johnson, Johnson Sharpening
Columbiaville, MI**

Eric called to thank me for something I put in the newsletter. He said the article about brazing parts in a notch gave him an idea to solve one of his problems. This newsletter is a lot of work, especially for a two fingered typist and it is always nice when someone calls to tell us that they appreciate it.

Marty Kleber

Carbide Saw in High Point, NC

He wanted to mention they use a dip tank with tri- sodium phosphate and like it a lot it's \$50.00 for 100 pounds which lasts for ever, leaves the blades somewhat rust proof and takes all the pitch etc. off their blades with an hour soak. It is safe enough to use on dishes, although his guys were gloves if they have a cut on their hand," because they are babies." (See cleaning article)

Bob Bos

**Rocky Mountain Sharp Shop
Loveland, CO**

Emily sold him our nail cutting grade for use in saws for a pallet cutting company they work for. They worked 50% better than the grade they were using before , so we won their business.

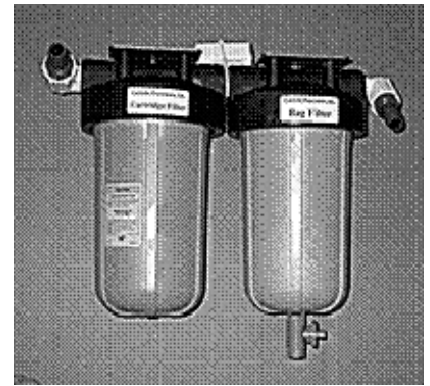
They have a pallet cutting company that keeps close records. They were changing the blades every day, now they are getting a day and a half.

Which would you rather have, carbide scarp or fun?

In many mills and shops the carbide scarp has been a little employee bonus. The company doesn't care so it belongs to the crew. We have had customers sell their scarp to pay for something new for the workplace such as a microwave or for an employee party like a fishing trip or a holiday dinner.

Scrap carbide and maybe grinding swarf are worth as much as \$200 per 2# coffee can

Wall Mount Filter Units



The new wall mount unit with two bag housings is a simple, inexpensive filter unit that pays for itself in two to three months. This unit fits into the existing coolant system on grinders and filters coolant to a one micron cleanliness. It pays for itself in two to three months with reduced diamond wheel cost. The new wall mount system has two filter bags, a 25 coarse one to catch most of the material and a fine one for deep cleaning. This means you go months between filters and the changes are simple and easy.

Proscope Inspection Microscope

Plugs in the USB port on a computer and creates images on your screen.



Two New Books

1. Building Superior Brazed Tools
267 pages, 271 illustrations covering more than seventy topics.

2. Failure Analysis In Brazed Tools
This book is a hands-on, practical approach with 97 pages and 165 illustrations, primarily color pictures.

Sue Puckett

Y-O-U-N-G
Sawmill
INC.



Dear Emily (and Dad),

Please find enclosed a couple of pictures of "yours truly" sporting one of your great t-shirts !

You may not even remember this, but you sent it to me last year after I saw your ad that said you'd make a donation to a charity if there was a picture of me in your shirt, although it was a little late for our fund raiser last year, and that I could use it this year.

I had such a good time modeling the shirt at our Relay For Life pancake breakfast last weekend. I am on a team from Beaver Dam Baptist Church (our pastor, Dr. Glen Armstrong, is to my right in one of the photos). I told him that I'd be leaving immediately after church services the following day to go to Washington to "check out" your customers (no false advertising you know!). Everyone there got a good laugh out of it. Thank goodness he did not mention it from the pulpit!

The other photo is of me serving my son his pancakes (sorry I almost covered up the shirt). He was laughing and telling everyone that the guy on the shirt is him (right before he got his new haircut) !! Also, MUCH LAUGHTER! It was a fun morning.



Whew.... Sorry I really did not mean to take up so much of your time with this letter, but I do hope you are still willing to donate to (what I think is a very worthy cause): Relay For Life which raises a lot of money each year in the fight against cancer.

This year our theme is " Scoopin' for A Cure" (We're doing homemade ice cream to sell at our big event Friday & Saturday, June 9 & 10. We've set our goal @ \$5,000 and have had several fund raisers to that end. Last time I heard we were right at \$3,800 so wish us luck and thanks, in advance, for any help you can give!

Thank you so much for the opportunity to wear your shirt , have a great time doing it and maybe even receive a donation too!

Thanks,
Sue Puckett

(Editor's Note: We know women like Sue Puckett and admire them greatly. We're pretty sure about two things with women like Sue: 1. they are going to heaven and 2. they will be organizing fundraisers there as well.)

Nobody loves You Like Your Mom

I went down to see Mom for Mother's day. I was going to go to the store for her and realized I didn't have my wallet. Mom was worried about me getting stopped by the police so she wrote me a note. I gave her my social security number, driver's license number, address, etc. She wrote it all down in her really nice handwriting. I didn't get stopped by the police but if I had it would have been all right. I didn't have my license but I did have a note from my mother. Who else would do that for you? Thanks, Mom

John Schultz

Super Thin Saws

I planted some birdseed. A bird came up. Now I don't know what to feed it.

I had amnesia once -- or was it twice. All I ask ... is a chance to prove that money can't make me happy.

The shampoo promised me extra body and I gained three pounds.

Where do forest rangers go to "get away from it all"?

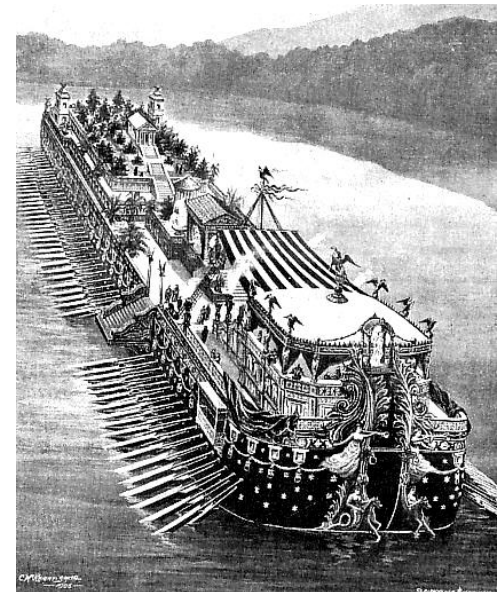
If swimming is so good for your figure, how do you explain whales?

Show me a man with both feet firmly on the ground, and I'll show you a man who can't get his pants off.

Is it my imagination, or do Buffalo wings really taste like chicken?

Editor's Note: In spite of the above John Schultz really is very well respected for his science and the quality of his products plus he sends out some of the best web site humor I get form anyone.

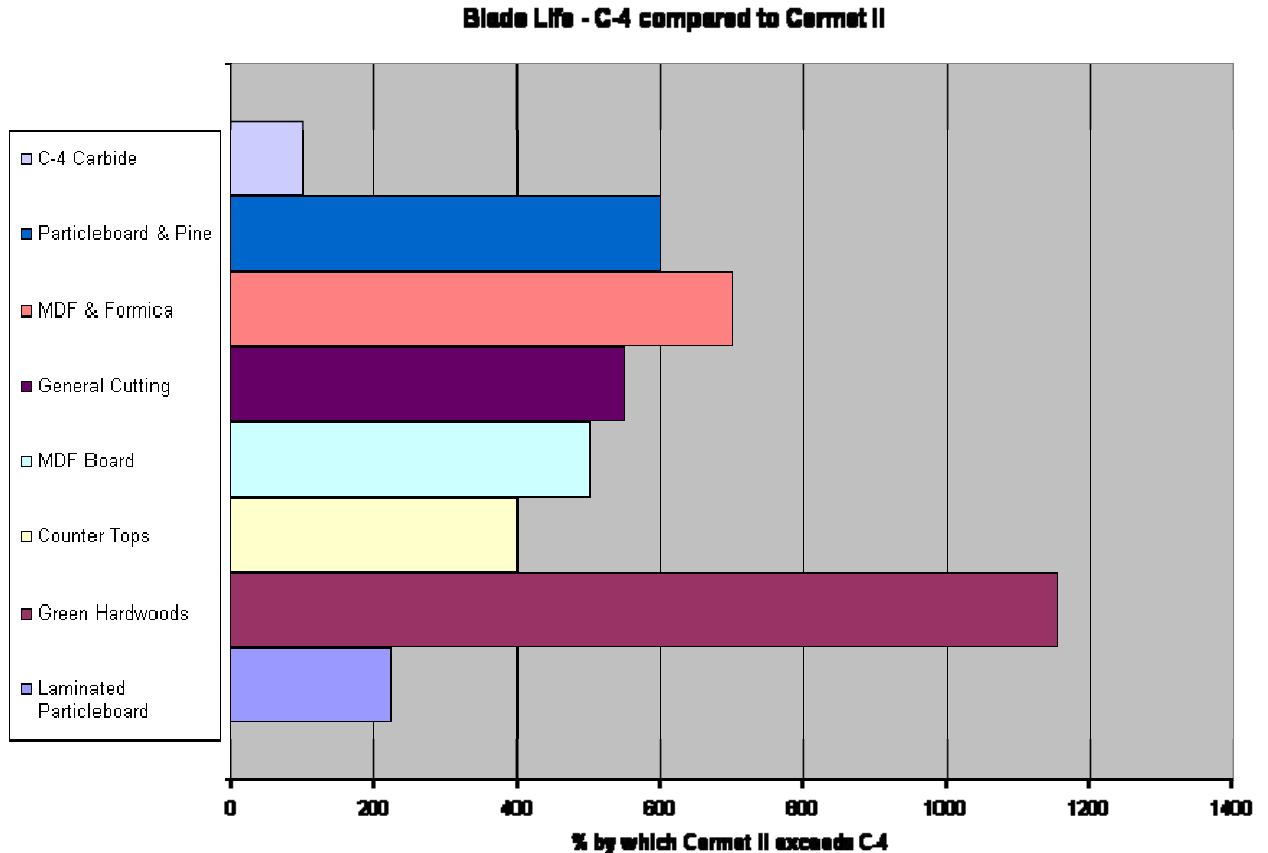
Boat for Sale



Actually this is an artist's reconstruction of a Roman barge found submerged in a lake in Italy. It was used by the Emperor Nero. I count about 200 people rowing and a full size temple on the bow.

Cermet II

Cermet II Grades Cut Faster And Stay Sharper Longer Than C-4 Carbide



Advanced cermet technology for wood, plastics, man made materials, etc.

The original cermets we used were steel cutting grades. Sometimes they gave sensational results and sometimes they were much worse than carbide. In addition they were very hard to grind.

After seven years we have Cermet II grades. A material that has all the advantages of the original cermet grades and it grinds like regular carbide

Benefits You Get

- Grinds like regular carbide
- Gives a better edge than carbide grades.
- Stays sharper longer than carbide grades
- Substantial increase in fracture toughness.
- More corrosion-resistant
- Better at high temperatures achieved when cutting and drilling.
- Cuts faster
- Cuts faster and longer while being tougher. Longer runs and less downtime.

Note: Degree of increase in fracture toughness is directly related to the amount of Co and grain size. Lower Co levels and finer grain sizes see a larger degree of increase.

How It Works

Carbide wear is due to micro-fracturing, macro-fracturing, grain pull out, corrosion of the binder, adhesion between the carbide and the material being cut, and tribological functions which are similar to a naturally occurring electro-etching.

Cermet II technology uses a variety of carbides such as titanium carbide, tungsten carbide, Tantalum carbide, Niobium carbide and others. Steel is iron with a very small amount of carbide but it is very different than plain iron. The addition of a very small amount of the right material can make a huge difference in carbide performance as well.

Cermet II grades also use unique binder formulations. Cobalt is a good binder material and is used in standard grades. It was the first binder used and is still easiest to use. However cobalt is pure metal and is subject to chemical attack. Part of the secret of our Cermet II grades is to chemically alloy special binders with a proprietary metalloid which makes the cobalt binder non-reactive so it doesn't corrode. It also greatly strengthens the binder so grinds aren't pulled out.

Cermet II grades have special binder properties so that they behave more as a solid piece of material than as a cemented piece of material. Think of a steel alloy as compared to concrete.

Mechanical Properties of Cermet II Grades Compared to Carbide

1. Cermet II has approximately 20% higher Palmquist toughness over the standard carbide of the same grade.
2. Cermet II has slightly higher wear resistance than that of standard carbide of the same hardness.
3. Cermet II showed slightly higher hardness in comparison with the standard carbide of same grade with same grain size and binder content.
4. Cermet II has higher fracture toughness over standard carbide by an average of 26%. Lower cobalt grade (6%) seems to improve more than that of higher cobalt grades.
5. TRS of Cermet II grades is similar to that of the standard grades.
6. Thermal Conductivity of Cermet II is somewhat lower than that of standard grade.
7. Coefficient of Thermal Expansion is comparable to that of standard grades.
8. Corrosion Resistance is higher than that of the standard carbide grades.

Cermet II Test – Blade Life

Example 1

Material:	45 lb. single and double sided vinyl-laminated particle board	
Control:	5 blades with standard C-4 carbide	
CermetII/old grade:	15,088 meters / 6706 meters	225% as much run life

Example 2

Material:	101.6 mm x 152.4 mm (4" x 6") Green hardwoods, oak, hickory, maple and walnut	
Equipment:	KM-16 industrial saw	
Control:	11 blades with standard C-4 carbide	
CermetII/old grade:	462 hrs / 40 hrs	1,155% as much run life
Saw Type:	406 mm (16") 100 teeth	
Material:	Countertops	
CermetII/old grade:	4 weeks/1 week (4 times)	400% as much run life
Saw Type:	406 mm (16") 80 teeth	
Material:	MDF Board	
CermetII/old grade:	10 days/2 days (5 times)	500% as much run life
Saw Type:	305 mm (12") 100 teeth TCG Miter	
Material:	Oak, Compressed Fiber Board, Plastic	
CermetII/old grade:	154 hrs/28 hrs (5.5 times)	550% as much run life
Saw Type:	305 mm (12") 60 teeth	
Material:	MDF, High Pressure Laminate (Formica)	
CermetII/old grade:	56 hrs/8 hrs (7 times)	700% as much run life
Saw Type:	G 1060A on Chop Saw	
Material:	Particle Board and Pine Dowel Rods	
CermetII/old grade:	48 hrs/8 hrs (6 times)	600% as much run life

Northwest Research Institute, Inc.
 Carbide Processors, Inc.
 3847 South Union Avenue
 Tacoma, WA 98409
 Phone: 253-476-1338
 Fax: 253-476-1321

Coolant Test Instruments

All you need for monthly coolant tests



pH test strips
 \$25.90 / 100



Cobalt Strips
 \$75 /100



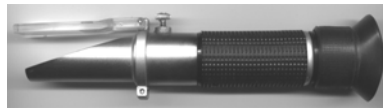
Digital Refractometer
 \$369



Graduated
 cylinder \$19.99



Bacteria & Fungus Check
 \$91.40 / box of 10



Optical Refractometer
 0 - 32% \$170



Absorbent pillows
 oil only \$2.95

Recommended Kit

Digital Brix Refractometer	\$369.00 complete	\$369.00
Cobalt Test Strips	\$75 per tube of 100	\$75
pH Test Strips	\$25.90 per box of 100	\$25.90
Bacteria & Fungus Test Kit - Box of 10 -		\$91.40
Tramp oil absorbing pillow (10 each)		\$29.50
Graduated Cylinder		\$19.99
Complete starter kit		\$610.79

Small shop & Hobby use

		Options A	B
Bacteria test (1)	\$14.99. (10 for \$91.40)	\$14.99	\$91.40
Cobalt test strip (1)	\$0.75 (100 for \$75.0)	\$0.75	\$75.00
pH strips 100 for	\$25.90	\$25.90	\$25.90
Tramp oil absorbing pillow	\$ 2.95 (10 for \$29.50)	\$ 2.95	\$29.50
Graduated cylinder	\$19.99	\$19.99	\$19.99
		\$64.58	\$241.79

Add \$12 shipping and handling for Option A and \$10.50 for options B and the Recommended kit

Oil Only Pillows

Easy, simple, cheap way to take tramp oil out of water based coolant.

Tramp oil clogs diamond wheels and shortens their life. It also makes the wheel grind hot as you need more pressure to get them to cut.



This tip was cracked by heat during grinding. The wheel was dull and / or clogged so it rubbed instead of cutting.



This would have prevented it. This is a polypropylene pillow that attracts tramp oil but not water based coolants.



Here we are pouring coolant into a bowl.

Next we add some oil.



Below you can see the oil as a big glob in the coolant.



We dip the pillow in.



Let it sit a minute



When we pull the pillow out you can see there is oil and only oil on it.



Here is the coolant with almost all the oil taken out of it. You can see that it took out oil but not coolant. There are a couple really small oil bubbles in the picture under the pillow. (I had to adjust the contrast to show the oil drops so you can't see the oil on the pillow. It is the same as the last picture.)



This is a small pillow, about airline size. We can get you larger pillows, sausages and even pom poms.



This is Lawrence, who runs the shop, holding some pom poms.

We also sell other great tools for managing your coolant.



Bacteria tests, Cobalt test strips, pH strips, Tramp oil absorbing pillow, Graduated cylinders and Refractometers

Two Cleaners - Two Different Approaches To The Same Problem



Ram Cleaner & Picoclean123 orange

Because cleanliness is absolutely essential to successful tipping we have done a great deal of research into it. Whether you are brazing carbide or welding on Stellite® tips you need a clean surface. Any oil or grease can interfere with the join and cause tip loss.



PICO 123 Orange

I had read some articles written by Picoclean personnel so I called them with the problem of cleaning saw blades. They asked us to send them some really dirty saw blades. They then developed a special formulation for saw blades, and similar tools.

Picoclean is a highly advanced version of the traditional caustic cleaners. Ram cleaner is heavily solvent based with some caustic cleaner.

Some customers are using straight caustic cleaners such as Lye, caustic soda or sodium Hydroxide. Others are using a solvent such as Acetone, alcohol or similar. These seem to be the two most popular approaches and either can be very effective.

No matter which way you go you will almost certainly get better results using a specially formulated cleaner.

Both these cleaners are more effective than just plain chemicals. These cleaners will clean more types of oils and dirt and clean them better. They are specially formulated to rinse cleaner. A specially formulated cleaner will also give much greater service life.

PICO 123 Orange Cleaner

This concentrate has a high pH, it is made by PICO with a reacted caustic base to inhibit its effect on base metals such as carbide.

This is a heavy-duty, water-based cleaner and degreaser used to dissolve a wide variety of ink, paint and resin coatings, dirt, oil, carbon and grease from floors, equipment and other substrates.

It is biodegradable and has a pleasant odor as well as being formulated with non-solvent cleaning additives, surfactants and wetting agents, which are non-flammable and non-carcinogenic.

This cleaner replaces flammable, toxic, hazardous solvent based products historically used for this type of cleaning and it forms a stable, low foaming solution when diluted with tap water and is completely free rinsing.

Product features and benefits:

- biodegradable
- non-flammable
- water dilutable
- low volatile emissions
- high detergency
- petroleum solvent free

PICOCLEAN 123 ORANGE has a variety of uses so that you can use the

product for maintenance as well as a production saw blade cleaner.

Dilutions will vary depending on the application. Heated soak tanks will probably run 5-10% and spray bottle hand cleaning about 3-5%.

PICOCLEAN 123 ORANGE does have a strong pH so that precautions should be followed by all workers handling the product and involved with any cleaning processes. After cleaning blades should be rinsed, then a corrosion inhibitor applied to bare steel to prevent any rusting.

Application:

Use this cleaner concentrated or diluted up to 50 parts with hot or cold tap water to remove the ink, paint or resin coatings, dirt, oil, carbon and grease from floors and other substrates. Note: time, temperature, concentration and severity of cleaning should be considered for total effectiveness.

Use it as well in steam cleaning, soak tank cleaning, manual type cleaning operations and industrial floor cleaning machines.

We recommend that parts are rinsed with water after use and coated with rust inhibitor if desired.

Recommended dilutions:

Heavy duty cleaning for dip tanks and fast cleaning. Spray bottles and other light cleaning use it at 4% (25 parts water to 1 part concentrated cleaner.

Free Samples

The Picoclean folks were good enough to send us some to test. We bought some spray bottles and diluted the concentrate 10:1 to make the recommended concentration for Heavy Duty use.

If you want a spray bottle of the Picoclean 123 orange to test just call or email. Emily at 800 346-8274 or sales@carbideprocessors.com

We do not have samples of the Ram cleaner.



Ram Cleaner

RAM cleaner is very versatile. It can be used as a mild spray for things such as cleaning furniture and windows, or a full strength cleaner to clean things such as concrete driveways, boats, motorcycles, pools, and lots of other things! All you have to do is adjust the strength to fit the type of cleaning job!

For small jobs, all you need is a small amount of RAM on a damp cloth or sponge, and wipe. RAM can clean tough problems such as rust, road tar, degreasing car engines, glue, and soap buildup.

One of the best things about RAM is that everything comes clean without bleaching! RAM Cleaner is non-flammable, non-abrasive, and has no phosphates.

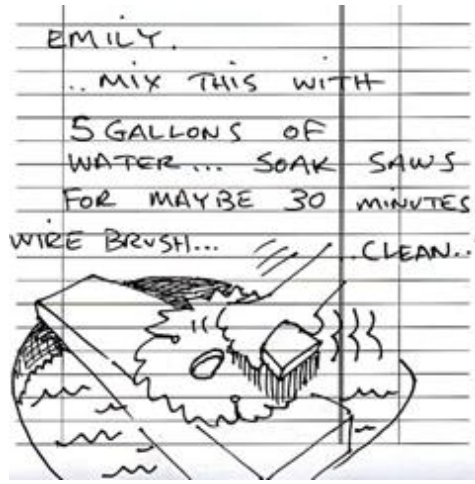
Ram cleaner is heavily solvent based with some caustic cleaner.

Ram cleaner is based on several very potent solvents with some caustic cleaner added as well.

It comes highly recommended to us in spite of the cost. See cost comparisons at the end of the article.

TSP (Tri Sodium Phosphate)

Marty at Carbide saws, Inc. in High Point, NC sent Emily a sample of this with a great drawing just in case Emily didn't know how to scrub saw blades.



They mix 1 pound per five gallons and really like the results.

Safety Comparisons

Both cleaners are designed with safety as major consideration. However pitch, tar, grease, oil and many other substances are chemically similar to people so cleaner that affects them will also affect people. Read and follow the MSDS and the label.

Cost Comparisons



Ram Cleaner concentrate retails at \$40 a quart while the Picoclean 123 orange concentrate retails at \$15/ gallon.

A quart is the minimum from Ram and a gallon is the minimum from Picoclean

Dilution for Heavy Cleaning

Ram recommends 5:1 and Pico recommends 10:1 This makes the Ram cleaner for heavy use \$0.25 per ounce diluted ounce while the Pico cleaner is \$0.012 per ounce for heavy use.

Ram Cleaner has a heavier discount schedule than Pico does. If you buy a 55 gallon drum of Ram cleaner the concentrate is \$0.06 per ounce and \$0.011 diluted for heavy use. A 55 gallon drum of Picoclean is \$0.05 per ounce as a concentrate and \$0.005 per ounce diluted for heavy cleaning.

Free eye droppers

The best way to test for plate cleanliness seems to be to use a water drop test.



You take an eye dropper and put a drop of water on the steel. If it forms a ball your surface has something on it. If it spreads out flat your surface is clean.



The surface on the left above is cleaner and more wettable than the surface on the right. The works for braze alloy and for welding as well.



If you have wax on a car you get nice round drops. Wax is good on a car because you don't want anything to get to the finish. Wax and oil is not good because you want the brazing to get to the underlying metal for the strongest bond.



Not only a pretty face but also great customer service

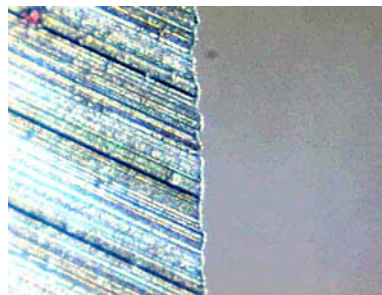
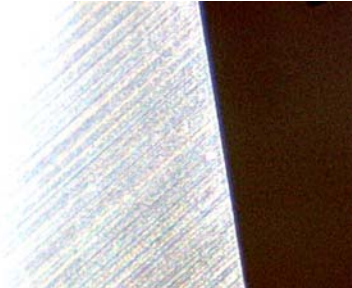
Here is Emily, who is always perky and always happy to help customers. Emily's job is to help people find carbide, silver solder, filter systems and everything else we sell. If we can't supply you but we know who can we will refer you. No matter what you want we will work really hard to find it.

IF you want special carbide, please place your order as soon as you can.

Because we are very good at finding and supplying carbide we get a lot of calls. Occasionally, after we find the carbide the customer isn't sure if they want it. When they call back to order the carbide sometimes it is no longer available. When we find it for you please order it as soon as you know you need it. We hate to disappoint anyone but we don't know a fairer way to do it than first come, first served.

How Good Are You?

These are pictures of two ground edges taken at 200x with a Proscope. It has been suggested that this might be a standard for a sharp edge. A sharp edge will be chip free at 200x. This is in addition to any consideration of the edge radius.



Photos supplied by Tim Cook of <http://finance.groups.yahoo.com/group/IndustrialToolSharpening>

We buy scrap carbide and swarf. Price varies but figure \$200.00 per 2# coffee can for scrap.

Bill Arnott, McGinnis Saw Service Dewey, AZ

Bill was good enough to comment on something I wrote a while back. He mentioned that the article was a good point to start a discussion. Then he went out of his way to make sure I wasn't offended by his comment which is pretty classy.

I try to write everything so that it will be accurate and helpful but the world is just too full of too many different situations. Besides communication is never perfect.

It always scares me when someone takes things I write as gospel and I am always pretty flattered when a smart guy thinks I wrote something that is worth further thought.

Sue Puckett, Young's Sawmill, and her son who is sure he looks like the guy on the shirt. See P. 3



New, big Line of sawfiler products including gray and black T shirts that don't show dirt. To order online see <http://www.cafepress.com/sawfiler> To talk to a person call Emily at 800 346-8274.

**Carbide Processors, Inc.
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