



# Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter December 2004

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## President's Letter

That's my picture above. I was talked into putting it there because it would make us look friendlier and more approachable.

### Please feel free to call

Over the years we have gotten calls from filers who work for a huge company and sort of think all company presidents are alike. Presidents of big companies are harder to contact than I am for good reason.

Some of our very best ideas have come from folks who start out by saying "I'm just a filer but....."

If you need help or have an idea feel free to call, email or anything else anytime you wish.

Once I saw the picture I sort of wished I had tucked my collar in and grabbed a clean lab coat. I didn't notice how I was dressed but I can tell you an awful lot about that saw blade. (It is a cermet tipped blade made by one of our customers. There are a couple hundred more pages about that saw blade on our web site.

We have a new newsletter format. The one we were using had a lot of color on slick paper. Reader feedback told us that what you really want is information you can use. You care lot more about hard facts than fancy paper. We are going to do simpler newsletters, more often.

## NEW TECHNOLOGY ISSUE

New, Proven Technology

### More Money for The Mill Less Work for The Filer

Mill Managers, Saw Filers, Quality Control & Purchasing  
Tipping materials, saw tips, Inspection tools, filter units

If you are interested in making better lumber at less cost with fewer problems and less work ask for information and our free newsletter or see our web site at [www.carbideprocessors.com](http://www.carbideprocessors.com)

(Free Information and Really Cool T Shirts)

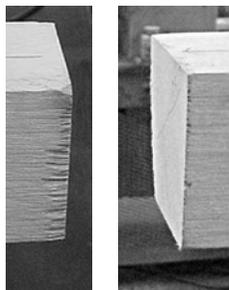
### Cermets (TiCN Ceramic)

Lineal feet cut at wear points

| Wear (Microns) | Carbide | Cermet |
|----------------|---------|--------|
| 14             | 2,700   | 5,000  |
| 18.9           | 3,800   | 10,000 |
| 20.6           | 4,000   | 15,000 |
| 25.8           | 5,000   | 20,000 |

Cermets outlast carbide at least four to one in green Western Red Cedar. Tests run at Forintek in Vancouver B.C. show that cermets stay sharper much longer than carbide in high acid woods.

Cermets take a much sharper edge than welded on tipping materials and can be sharpened without a burr.



Carbide Cermet  
Cleaner cuts with Cermet

### Comet Grades Of Reinforced Tungsten Carbide

Comet Reinforced Tungsten Carbide

|                |               |
|----------------|---------------|
| Particleboard  | 100%+ better  |
| Hard aggregate | 20% better    |
| Green oak      | 100% better   |
| Sawmill        | 1,000% better |
| Copper tube    | 400% better   |
| Fiberglass     | 50% better    |

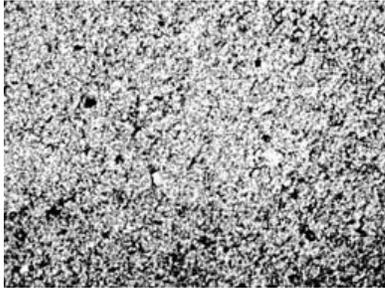
Comet grades are up to two times tougher and gives up to ten times better wear. The concept is pretty simple. Most carbide is a cemented material much like concrete. What we have done is add the mechanical version of rebar which gives a much stronger, tougher and corrosion resistant material. In sawmill tests it ran 422 hrs vs. 40 hrs for carbide. It was 100+ % better in 45-pound, double-and single-sided, vinyl laminated particleboard, 100% better in green oak and even 20% - 30% better in hard aggregate. It can be ground like ordinary tungsten carbide.

## Proscope Inspection Microscope

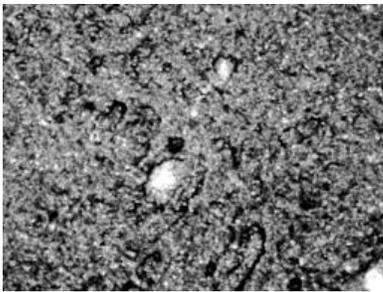
Plugs in the USB port on a computer and creates images on your screen.



## Purified Flux



Purified flux at 50x magnification  
Smooth, even and consistent



Standard flux at 50x magnification  
Large grains of foreign material

Purified flux is black flux that has had extra processing steps. These processing steps take the black article out and leave the flux a rich, creamy brown color. If you take a little of each flux and rub it between your fingers you can feel that Purified Flux is not only smoother but the particles are smaller and there are no extra large particles.

## 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 changes and the filter changes are simple and easy.

## Saw Tip Material Sourcing

A new service. We source carbide and braze alloy from over fifty sources. This seems to be especially popular with hard to find sizes and with buyers seeking low cost or fast delivery. The customer emails, faxes or otherwise contacts us, and we plug the request into our international market database then get back with the answers.

## Lower Cost, Tool Grade Braze Alloy

Silver is now \$7.50 and ounce up from \$4.50 an ounce a few months ago. With a 50% silver based braze alloy this is a couple dollars an ounce more. We no have a 40% silver braze alloy and even a 30% alloy that work very well on tools and sell for less money.

## Two New Books

Building Superior Brazed Tools and  
Failure Analysis In Brazed Tools

## New, Free Literature

Besides our quarterly newsletter we also have information on Basic Saw Tip Ordering which describes sizes, shapes and grades.

## Charities



Amanda Howard – San Anselmo, CA  
Walking For Breast Cancer  
3 days – 60 miles

You ought to leave the world a better place than you found it. Growing up I heard that from my parents, the church and the Boy Scouts. Some of that we do by helping people make better tools. Some we do with our research on worker safety and the environment which we give away free. We are also ready to sponsor walks and buy candy bars from kids for a charity.

## Sabrina Sullivan of Bruce Hardwood Floors

sent us a very polite letter telling us about a heart association walk. We made her a deal. We would give \$100 as a donation or \$200 if we could get a picture of someone walking in our T shirt. Sabrina went for the \$200 so look for her picture here later. In an upcoming issue.

## Your Christmas card will feed a child.

Years ago we go a call from the local food bank. They were really short on baby food. We realized that for about what Christmas cards cost us we could buy a pick up truck pretty well full of baby food. Now, instead of sending out a card for the holidays we will just extend best wishes here. Besides we have many customers with a great many religious beliefs but pretty well all of them think feeding hungry babies is good thing to do.

## Educational Conferences

Wood Machining Institute  
ScanTech & SawTech 2005  
Seattle, Washington. November, 2005.

Wood Industry Forum "A Wood Technology Conference Event"  
Seattle, Washington April 2005

# Know What You Are Buying

## Proscope Analysis of a Saw Blade



Proscope as seen on CSI

This is a very condensed version of a seven page report I did on saw blade quality. A saw mill bought these saw blades from their supplier. These blades did run well so the mill called in another supplier to do an analysis. The second supplier had ethical considerations with criticizing his competition's work and I was called in as an independent expert.

Most of this as done with our Proscope with a 30x lens using both standard and polarized light.

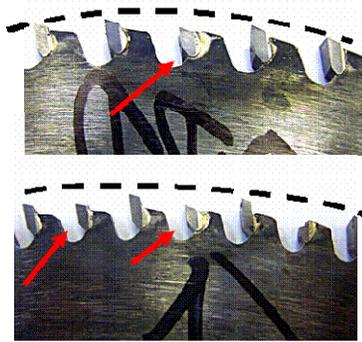
### Executive analysis

I see maybe ten kinds of problems here depending on how you sort them out.

1. Two kinds of tips - Most of them too long
2. Uneven side clearance
3. Not all tips were side ground
4. Dirty plate (Huge voids between the tips and the plate)
5. Dirty and /or bad surface treatment on the tips
6. Breakage – Both heat stress
7. Breakage –impact – (there are certainly better grades)
8. Brazing – one side too hot and one side way too cold
9. Overheated braze alloy
10. Probably wrong flux

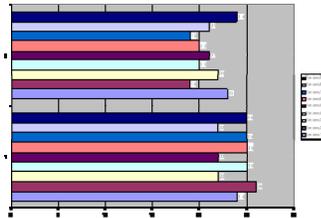
### Two sizes of tips

Some tips are obviously shorter than others even allowing for the ATB grind. The short tips also seem to be about 0.010" thicker.



### Uneven Side Clearance

Two graphs showing side clearance in thousandths of an inch



### Some tips were not side ground at all

The tip in the top picture below was side ground but the bottom tip was not.



### Brazing - hot and cold sides

It is very common to have one side get slightly hotter than the other when brazing. In this case the hot side was really hot and the cold side was way too cold.

Hot side 30x left and cold side, same tip 30 x bottom



### Voids between tips and plate – 30x standard light



### Wood in the voids – 30x with polarized light



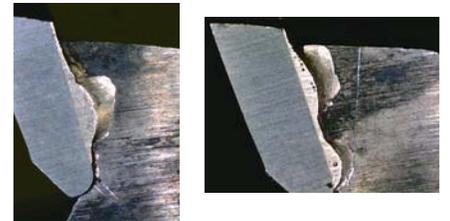
Std light & polarized light  
Polarized light can be very helpful for identifying and examining cracks. These are two shots of the same tip. The dark hole on the left shows up as orange color on the right.

In the photo the wood blends into the silver solder so we took a pin and dug some of the wood out just to prove it was wood. Here you can see the hole.



### Dirty plate

Two shots showing bad flow because of dirty plate



### Heat Stress & Impact Breakage



### Really dirty plate and badly burnt braze alloy



## Saw Tips

Top Quality, Fast & Good Prices

Paul  
Duclos  
(503) 753-5302



Peerless Saw Co. has made a major addition to their inventory at Carbide Processors. They have greatly added to the number of sizes and styles as well as increasing the total number of tips.

**Great Free Information** is also available from Peerless.

### Sourcing Silver Solder & Carbide

If you need carbide or silver solder give us a call. We regularly deal with deal with silver solder & carbide suppliers all over the world. Many of our customers carry extensive inventories.

### Saw Filer T – shirts



\$14.95 plus \$3.95 S&H. If you are buying our pretinning, tips or filter systems just give us a call and find out how to get a free T shirt.

## A Great New Tool Why You Need It



Proscope with three lens kits start at \$475.51



## We buy Carbide scrap and grinding swarf

The market varies but you can figure at least \$1.00 per pound

## Silver Solder Sale

**\$5.00 / oz.** Selected sizes

## Next Month

- Winter Cutting Solutions
- Coolant Filtering & centrifuges
- John Gammelgard, a really good filer, gets a really bad saw & we analyze it
- Downtime standards – How good are you?

### World's Best Brazed Tools Supplies, tools & Technology to make them

Supplies and Services for Saws and  
Tools

Stop Tip Loss, Breakage &  
Downtime; Cut Longer & Cleaner

- Pretinning – Cut costs, stop tip loss, eliminate breakage
- Silver solder – Our own Hi Impact and standard grades
- Saw tips - Nicut better than C-1 and C-2
- Saw tips - Comet Grades Better than C-3 and C-4
- Saw tips - TiCN true cermets – feed faster, wear longer and cut cleaner
- Purified flux – better braze joints
- Talonite tipping alloy – better than any other tipping alloy
- Filter systems – pay for themselves and more in reduced diamond wheel use, cleaner grinds, faster grinds and longer coolant life
- Inspection microscope – our digital microscope
- Failure analysis

**More money for the mill and  
less work for the filer**

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