



# Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter January, 2012

3847 S. Union Ave. Tacoma, WA. 98409 (800) 346-8274

sales@carbideprocessors.com [www.carbideprocessors.com](http://www.carbideprocessors.com)

## Lower Carbide Prices

No pretin

WEC 7150	0.167
WEC 7200	0.221
WFC 7150	0.291

With pretin

WDC 7250	\$0.289
WDC 7185	\$0.304
WDC 7280	\$0.343
WDC 7312	\$0.374

Limited quantity on hand  
(We can get more but it takes a few weeks.)

These are brand new, top quality tips. They are not surplus or returns. You get a 100% satisfaction guarantee. If you don't like them for any reason we will take them back. Even if you just ordered the wrong tips.

We are working to lower carbide prices. If we buy directly from a manufacturer, special order and agree to take a full run then we get a much better price. The drawback to us is that we have a lot of money committed to inventory. We thought we would try it and see how important price is to anyone.

## Need Some Help?



We have some equipment that you don't find in most saw operations. We have solved an awful lot of carbide and brazing problems for folks. Give us a call and maybe we can help you.

800 346-8274 or email  
sales@carbideprocessors.com.

## Saw Steel and Temperature

This article came about because of a question from a customer. The customer wanted to know how hot you could safely get saw steel.

Saw steel can be hardened or softened (annealed) by heating it then cooling it. How hard it gets depends on the chemical composition of the steel as well as how the heating and cooling cycles are run.

The properties of the steel are created by the crystalline structure. Most commonly this is referred to as an Austenite / Martensite Transformation. It is nowhere near that simple. There are other types of grain structures.

Typically there is a single temperature given for the transformation point. Again the process is nowhere near this simple.

A common safe figure given is 1300°F. This is sort of medium red in color depending on your shop lighting. A dangerous level is 1600°F which is a good orange color. I have seen people brazing at temperatures where the saw plate was turning yellow which is maybe 1800°F in 1900°F. I have even seen this with automatic brazers. Brazers need to be calibrated and thermal sensing equipment needs to be maintained. Thermocouples will burn off and need to be replaced. The cover lenses on optical sensors typically cloud up. The best brazing fluxes are potassium salts of boron and fluorine. During use HF (Hydrofluoric acid) is formed. Hydrofluoric acid is one of the very few things that will etch glass.

One of the issues of concern is brazing carbide tips or welding metal alloy tips to steel saw bodies. (More on P.2)

## Ever need \$1000?



We will give you cash for old, dirty inventory you are never going to use.



Cash for scrap carbide

Big Mill or Small Shop –Cash is always better than dirty, old inventory.

## We Have a Huge Carbide Inventory

If you need it, odds are good we have it. Keep the stuff you are really going to use and sell the rest.



Remember: Winter brings its own set of road hazards.

### (Saw Steel & Temperature cont.)

Brazed carbide tips need to be about 1350°F for about half a second or a little less. The metal alloy tips need to be about 2400°. This is obviously above the heat affected temperature of the steel saw body.

There are two methods to prevent damage to the saw plate. The first method is to control the time and temperature. They heat is presented through the carbide into the braze alloy and then the steel. If this is done properly then you have a very thin layer of hard, brittle metal right behind the carbide tip. If too much heat is used in the heat affected zone of brittle metal moves further down the steel saw shoulder. Imagine a line drawn across the shoulder from the bottom of one dollar to the bottom of the next. The closer the heat affected zone gets to this line the more likely you are to have a problem with snapped shoulders.

The second method of controlling the problem is to go ahead and heat the tip anyway you wish and then temper the steel after brazing or welding.

Heat can be a real problem when running the saw as anyone who has ever had a stick caught in a guide can tell you. Affecting saw steel by temperature is actually affecting saw steel by a combination of time and temperature. You can subject saw steel to a 4000°F oxy-acetylene torch without damaging it at all. Obviously the secret is to just briefly wash the plate in the flame from the torch. This is sort of the same idea firewalkers use when walking on hot coals. You need to keep moving and you don't get burnt. You can also see the same thing when you drop an ice cube into boiling water. In spite of the temperature difference it does not melt completely, immediately.

#### Conclusion:

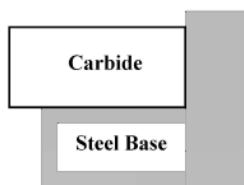
You can get saw steel as hot as 1400 to 1450°F during the tipping operation if you control the time and the heat source so that you only affect an extremely thin layer behind the tip. With brazing carbide or metal alloys and with melting braze alloys by welding you

will affect the steel and really should temper it after you are through attaching the tips.

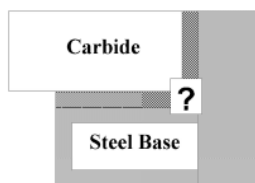
If you get your saw plate to 1300°F during operation you should probably scrap that saw blade. If you wanted to, and you had the skill, you could torch temper just that area of the saw plate that got too hot. This doesn't work very well but you might be able to get by. This is also extremely dangerous because you risk the possibility of having an embrittled saw plate that is going to come apart on you during use.

### How to Measure Brazing Temperature At The Back Of the Joint

Many wear applications use tungsten carbide brazed to a steel body. In many cases the piece of tungsten carbide can be very large as well as very thick. Even brazing a relatively small part, such as 1" x 1" x 1", presents the problem of how to determine when the proper temperature has been reached at the deepest part of the braze joint.



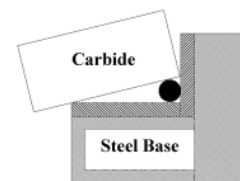
This drawing is made to represent a large piece of carbide being brazed into a large steel holder.



A common method of doing this is to use a tri-metal ribbon also called Plymetal©, sandwich material or similar. This material is braze alloy on either side of a copper strip. At the flow temperature of the braze alloy the copper anneals into a dead soft condition. This "dead soft" layer of copper helps relieve the considerable stress caused by the difference in expansion rates of the two materials.

I show the sandwich braze material as the darker gray material between the carbide and the steel base.

The problem is how to find out when the braze alloy has reached its full melting point. The area represented by the question mark is meant to represent that part of the braze joint that is farthest from heat source whether it be torch, induction or something else.



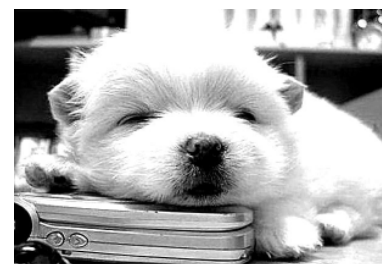
A solution that I have found very handy over the years is to use a very small bit of wire at the very back of the joint. This raises the carbide up just a bit. When the heat penetrates all the way back the braze alloy wire bit melts and the carbide part settles down.

Two points:

1. This drawing is wildly out of scale. If the carbide part were 1" x 1" x 1" than the piece of braze alloy would be something like .046 inches in diameter.
2. I don't believe that this is completely accurate but it is certainly better than no indicator at all.

### Better Carbide at Better prices

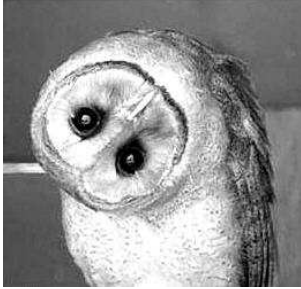
We deal with 26 suppliers and sell 126 different grades. We can solve problems and save you money on carbide and braze alloy.



# How to Solve Problems



Are you wrestling with problems?



Something have you confused?



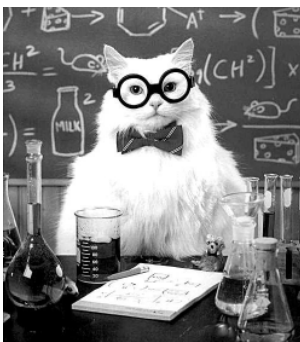
Don't worry. We have your back.



We are always eager to help.



We will listen to your problems.



We will do some sciencesy stuff.



We have a well equipped lab.



And a highly qualified staff.



If we can't help you, we can have Paul Duclos of Peerless Saw Co. come visit.



We will do whatever it takes to put a smile on your face.

## Today's Quiz

Olivia Wilde (Plays 13 on House) got a haircut. Which do you like best?



Correct answer: Who cares? She's gorgeous either way.

# Two Ohio Hunters

Two Ohio hunters, Paul and Steve, got a pilot to fly them to the Canadian wilderness where they managed to bag two Bull Moose.

As they were loading the plane to return, the pilot said the plane could take only two hunters, their gear and one moose.

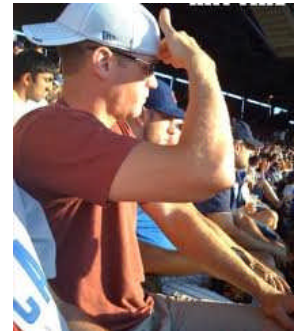
The hunters objected saying, "Last year, we shot two, and the pilot let us take them both . . . and, he had exactly the same airplane as yours.

Not wanting to be outdone by another bush pilot, he gave in, and everything was loaded. Unfortunately, even under full power, the plane couldn't handle the load and went down in the wilderness.

Somehow, surrounded by sleeping bags, clothing and two moose, Paul and Steve survived. After climbing out of the wreckage, Paul asked Steve, "Any idea where we are?"

Steve replied, "I think we're pretty close to where we crashed last year."

## What is wrong in these pictures?



1. Hat on backward and shading his eyes. 2. Carrots in the toaster.

## ISKA Speakers

### Intooligence

Jim Baad, Vice President of Intooligence, brings 5 years experience in Information Technology and spent 2 years in the woodworking tooling industry and serves as a bridge between the needs of the woodworking industry and the capabilities of information technology for Intooligence. This means that the speaker knows how tools are made, knows how tools are used and has an excellent understanding of manufacturing processes.

(Following is information as supplied by the speakers)

### Intooligence - Jim Baad

#### **Intooligence Pro and Enterprise are our offerings for end-users of tooling.**

They include features like tracking and searching tool inventory, tracking the usage of a tool and cost-per-foot of a tool, managing machine preventative maintenance and maintenance tickets, and text and email alerts for when a machine needs maintenance or a tool has been damaged and many more. We have had good success with this in 2011 and we are excited about 2012 and the opportunities that are developing for this coming year. Many of you may have customers that are demanding more accountability with their tooling, ex. tracking their tooling, numbering panel saw blades, cross-checking paperwork, etc. We have found that these types of customers are looking for a solution like Intooligence and appreciate when their tool-sharpener tells them about a solution to help them organize their tooling. Many tool-room managers are being asked to be more accountable with budgeting, tool-life, and other price factors and they need software to help them generate this information. Some of you may be wondering if this would make your life miserable to have your customers tracking tooling that you service. We have found the opposite to be true; Customers will have the ability to give you better data about a tool, replacement part numbers, CAD files, and projections of how many pieces they actually need.

**Intooligence TS is our solution for tool sharpeners.** It consists of a tablet that you can take with you into the customer and electronically record the drop-off and pick-up of customers tooling. We also have a wireless printer that you can hook on your belt and print out receipts and if you have tech-savvy customers they can receive automatic emails at the end of the day with what you delivered and picked-up. You can configure your routes for each day and sales-person and see what you have in-house for each customer. In the office there is software to automate the import of invoices from Intooligence into your accounting software, ex. Quickbooks, etc which reduces the time it takes to enter invoices. Intooligence TS was built knowing that every sharpener has different prices and categories of tooling that they service and because that everyone can have their service codes and prices in their tablet(s). We've found through extensive testing last fall and this spring that there are a lot of other benefits to having tablets with your sales-people on the road, including email, pictures, videos, PDF files, etc that really help your sales-people be more effective at answering questions and communicating orders back to the office. The comments from the customers has been the most interesting with many of them impressed at the level and technology that the sales-person now has in their hands. The tablets are an excellent avenue to show videos and photos to your customers on how you service their tooling every week.

Jim Baad  
Vice President  
Intooligence  
Email: jim@intooligence.com  
Phone: 877-720-8665 x101  
Web: <http://www.intooligence.com>

### Rief Media

<http://www.riefmedia.com/>  
Chase Rief of Rief Media is the son of ISKA's own Tim Rief. He grew up working in a top quality saw shop, went to college and got his degree.

## Chase Rief of Rief Media

### Three questions to ask yourself about marketing

A lot of businesses like to put up a website and think that clients will come automatically from that. They don't think about all the steps involved in getting the marketing setup correctly, and then once it's setup, the steps required to make sure people can find you and will do what you want.

Below are three things to think about when setting up any marketing or advertising - online or offline.

#### 1. Have a goal

What is the goal of your marketing? Everything you do should be measured as much as you can so you can allocate dollars correctly and will know what's working.

#### 2. What's your plan?

Now that you have a goal and know you want to market yourself and advertise. What's your plan? There are many ways to measure from coupons used, visitors to your site, to custom tracking phone numbers. Each of these items would move things around differently to promote the goal in a different way.

3. Have an online presence that is easy to use and resonates with your clients. You need to have a website that legitimizes your business. It should be clean, easy to navigate, and show off what exactly you do quickly and effectively. Once you've shown the visitors what you can do - let them get ahold of you! Make sure your phone number/address can be found easily.

There is never a better time to start than now! Start small and be sure to measure and test your marketing. Once you get going you can always expand your reach!

Chase Rief  
Rief Media, Inc  
t. (949) 287-4163  
f. (949) 269-0635  
[www.RiefMedia.com](http://www.RiefMedia.com)

# Super "C" Carbide Grade

Tougher than C1 - Better wear than C3

## What Makes Super C Tips Truly Superior

1. Superior Abrasion Resistance - Abrasion or straight wear is countered by smaller, better grain size.
- 2 & 3. Superior Adhesion and Diffusion Resistance (corrosion and chemical attack) Super C grade of carbide has an extremely fine structure so there is very little binder presented to the material being cut. This, combined with the special metallurgical formulation the Super C binder (hint - it's not just plain Cobalt) creates an extremely wear and corrosion material for use in wood, plastic or non-ferrous metals.
4. Superior Fatigue Resistance

**And People Really Like Them - Call Today To Try Them - Most Sizes Readily Available**

Super C Hardness (HRA) T.R.S. (psi)  
92.2 - 92.4 530,000 +

Typical C2 values

	Hardness (HRA)	T.R.S. (psi)
C2	92.1	334,000
C2	91.8	334,000
C2	91.5	377,000
C2	90.4	435,000

Typical C Values

	Hardness	T.R.S. (psi)
C1	89 - 92.4	350,000 - 360,000
C2	91.2 - 92.9	250,000 - 400,000
C3	91.4 - 93.6	270,000 - 350,000
C4	89.6 - 93	260,000 - 450,000

## Sawmill Grade Tips

- \* Transverse rupture strength well above 500,000 psi.
- \* Rockwell A hardness above 92
- \* Alloy binder for corrosion resistance
- \* Grain structure to inhibit both crack initiation and crack propagation
- \* Micro grain or mixed grain for superior wear

**Carbide Processors, Inc.**  
800 346-8274

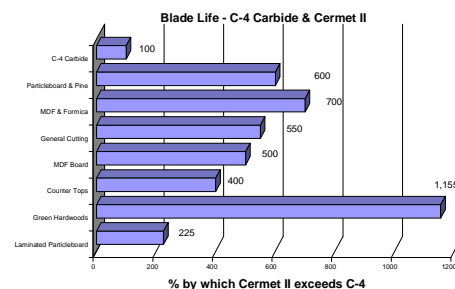


## Cermet II® 8 days instead of 5 in MDF

**Three weeks and three full loads of double side melamine laminate instead of 1 week and 1 load with carbide**

1. 5 blades with standard C-4 carbide cutting 45 lb. single and double sided vinyl-laminated particle board  
\* Cermet II - 15,088 meters / old grade - 6706 meters for **225% as much run life**
2. KM-16 industrial saw cutting 101.6 mm x 152.4 mm (4" x 6") Green hardwoods, oak, hickory, maple and walnut using 11 blades with standard C-4 carbide  
\* Cermet II / 462 hrs / old grade - 40 hrs **1,155% as much run life**
3. 406 mm (16") 100 teeth cutting countertops  
\* Cermet II - 4 weeks / old grade - 1 week (4 times) **400% as much run life**
4. 406 mm (16") 80 teeth cutting MDF Board  
\* Cermet II - 10 days / old grade - 2 days (5 times) **500% as much run life**
5. 305 mm (12") 100 teeth TCG Miter cutting oak, Compressed Fiber Board, Plastic  
\* Cermet II - 154 hrs / old grade - 28 hrs (5.5 times) **550% as much run life**
6. 305 mm (12") 60 teeth cutting MDF, High Pressure Laminate (Formica)  
\* Cermet II - 56 hrs / old grade - 8 hrs (7 times) **700% as much run life**
7. G 1060A on Chop Saw cutting Particle Board and Pine Dowel Rods  
\* Cermet II - 48 hrs / old grade - 8 hrs (6 times) **600% as much run life**

**Use Cermet 2 instead of carbide and make your life much easier**



## Cermet II® Successes

1. Several times the life in a window and door plant.
2. 3 times the life in Corian.
3. 8 days instead of 5 in MDF and we have an even better grade coming.
4. Twice the life in beetle killed Lodge Pole pine.

### Benefits You Get

- \* Grinds like regular carbide
- \* Gives a better edge than carbide
- \* Stays sharper longer than carbide
- \* Great increase in fracture toughness.
- \* More corrosion-resistant
- \* Better at high temperatures
- \* Cuts faster
- \* Cuts faster & longer yet is tougher
- \* Longer runs and less downtime.

## Report from Marvin Windows

On the saw that we tried. How many times we resharpen a blade before we order new or have retipped we are not sure. Most blades get damaged by hitting something so we have the carbides retipped a lot. How often do regular blades have to be resharpened? We normally have our carbide tipped blades sharpened every week.

The new Cement II blade normally lasts twice as long before it gets damaged. The best so far is four weeks and one and a half million cuts before we changed it out which is four times longer.

Hope this helps and keep up the good work on those tips.

Nathan Hull, Grinderman  
Marvin Wood Products

# Brazing Procedures Specifications

Example: Brazing Tungsten Carbide to Steel

**Note: this is a general overview. It is, in no way, meant to be suitable for any specific application. It is to serve as a guide and a base for brazing applications in general**

## 1. Safety

- A. List of dangers - flux fumes, perhaps cadmium in the braze alloy, Zinc fumes
- B. Methods of exposure - inhalation, smoking or eating without washing hands
- C. Avoiding exposure - work under the hood. Use smoke sticks to verify hood effectiveness. . Wash your hands.
- D. Other safety considerations. Do not get burned. Even parts that have cooled considerably can still be hot enough to burn you.

## 2. Surface condition

- A. Is plating necessary
- B. Roughness
- C. Free carbon
- D. Oxides
- E. Oils and greases
- F. Surface cleaning methods

## 3. Test methodology for surface conditions

- A. Eyedropper method of water break test - use an ordinary eyedropper and gently put four drops of water onto the surface to be tested. If the water forms a high bubble the surface needs to be tested. If the water forms a flat puddle the surface should braze well.

## 4. Ambient conditions

- A. Cold shop - A cold shop, common on Monday mornings, can affect heat transference and cycle times.
- B. Cold fixturing - Cold fixturing can suck the heat out of the braze joint. Typically the fixturing is on the under side or the back side. Quite often there is a good joint on the visible side and a cold joint on the fixturing sign.

**5. Alloy selection** - alloy selection may be the most under-appreciated part of brazing.

- A. Suitable for materials being joined
- B. Desire temperature range
- C. Desired strength
- D. Desired cost
- E. Safety e.g. Cadmium

## 6. Flux selection

- A. Suitable for braze alloy temperature range
- B. Robustness - some fluxes hold up longer than others.
- C. External fluxing - fluxing outside the braze joint only
- D. Internal fluxing - fluxing incised the braze joint. A more purified flux may be needed

## 7. Braze joint thickness

- A. Tensile strength versus impact strength - a thinner joint typically has higher tensile strength while a thicker joint gives more strength against impact particularly where there is a great difference in thermal expansion between the two materials being joined.
- B Amount of alloy
- F Fixturing pressure - too much pressure can squeeze the liquid alloy out of the joint

## 8. Internal temperature measurement

- A. "Rock in shoe" method - when brazing large parts it can be difficult to tell when the proper temperature is been achieved in the thermal center. One method to determine this is to put a bit of braze alloy wire in the center of the joint. When the wire bit in the Center melts the parts will shift and you know the temperature.

## 9. Heating

- A. Heating method - torch, induction, oven, atmosphere, friction
- B. Maximum temperature - how hot can you get the braze alloy?
- C. Heat of transformation - (50° F above flow point) (Much more than heat of transformation is involved here.)
- D. Cycle time
- E. Maintenance of equipment e.g. Fluoride based flux fumes etching optical sensors

## 10. Movement of parts

- A. Keeping parts where you want them
- B. Moving parts at temperature - sometimes desirable to release trapped flux fumes
- C. Amount of movement
- D. Movement pressure

## 11. Post braze analysis

- A. Gaps and voids
- B. Uniform flow
- C. Braze joint thickness
- D. Difficulty of cleanup - brazing fluxes are typically easy to clean up with warm water and a little scrubbing. If this is not the case, quite often it is indicative of the fact that not enough flux was used.

## 12. Cleanup

- A. Method - typically warm water and general agitation
- B. Materials
- C. Tools – e.g. brush, tumbler, strainer
- D. Safety – wear eye protection if brushing, wash hands afterwards



Science Dog says "Happy to help"

## A Chinese Woodworker

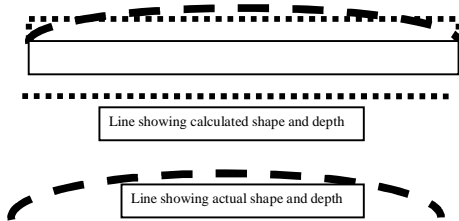
A Chinese woodworker recently opened his shop to discover that sometime during the night a significant quantity of his rare wood blanks had been stolen. Looking for clues, he discovered a child's footprints in the floor's sawdust. The woodcarver decided to lie in wait to capture the thief. Sure enough, that night he heard a noise. The Chinese woodwork jumped from his hiding place and flicked on the light.

Standing before him was a SEVEN-FOOT tall BEAR with itty-bitty feet!!!

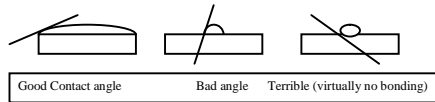
Thinking quickly, the craftsman hollered: "Ah ha, I've caught you, boy-foot bear with Teaks of Chan!!!"

## Average Braze Alloy Depth

We prefer to specify alloy depth by a term called "Average Alloy Depth." This treats the part as though the alloy would form a flat topped, straight sided layer. This makes it very easy to calculate from either volume or weight.



About the best way to treat the surface on the basis of crown height is to treat it mathematically as a truncated pyramid (a frustrum.) This has two problems. 1. The accuracy is, at best, only within 5% 2. The contact angle between the braze alloy and the underlying material is a rather important means of measuring wettability and hence the success of the flow and the bond.



## Overheard at a Filer's Meeting

He said "Look at those two old drunks sitting across the bar from us. That's us in 10 years".

She said "That's a mirror, dip-shit!"

## The Longest Nerve in the Body - Research from the Mayo Clinic

Did you know that in the human body there is a nerve that connects the eyeball to the anus? It's called the Anal Optic Nerve, and it is responsible for giving people a shitty outlook on life. If you don't believe it, pull a hair from your butt and see if it doesn't bring a tear to your eyes. My public service is done for the day.

(I know this is a horrible joke but every time I read it I start chuckling all over again. Editor)

Thanks to Tim at Bill's Sharpening in Illinois

## Free

A steel cased inspection mirror.  
New- now with free magnets



These are used by many to inspect the back side of saw blades and other tools while sharpening is in progress. They have a steel case which makes it possible to mount the mirror with a magnet on band saw grinders and other machines. You can also slip them in a pocket and use them as a hand held inspection tool.

## Free Internet advertising

The Internet is full of directories that are similar to the Yellow Pages.

If you are a saw sharpener in Des Moines Iowa do a search for "saw sharpening Des Moines". You will see a long list of directories. If you are a saw sharpener in Des Moines you really should be on this list and you can get on it free.

If you click on one of the results in the search page it will give you a list of saw sharpeners in Des Moines. Somewhere on the page (maybe in the top right) there will be an option to add your business to the list.

These directories want every business in the country listed. They are doing the same thing that the Yellow Pages do. They will give you a small, basic, free listing.

As you go through the process of adding your information you will also be given the options of buying lots of stuff. You can buy bigger ads, special placement, maybe special fonts or almost anything. But there are dozens, if not hundreds, of directories where you can list your business for free. Remember to list yourself with surrounding towns as well.

## Free, Free, Free Safety Glasses



This is our president, Tom, in a pair of our new safety glasses from Wolf Peak who are the makers of Edge Eyewear. The safety glasses come in dark, clear or with a light, antireflective coating. If you want a pair, e-mail [sales@carbideprocessors.com](mailto:sales@carbideprocessors.com) or call 800 346-8274 and we will be happy to send them to you.

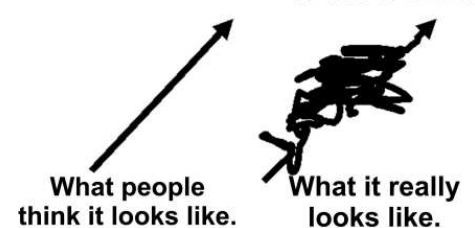


Safety glasses that fit over glasses without rubbing on the lens.

These are incredibly stylish and comfortable. They are also fully safety approved by ANSI (American National Standards Institute) and meet military specifications. They are rated by the military for a shotgun blast from 22 feet. (Don't try this. Just take their word for it.) We have full safety certification we would be happy to supply. These safety glasses are often seen on TV in shows about extreme sports.

800 346-8274

Success Success



Carbide Processors, Inc.  
3847 S. Union Ave.  
Tacoma, WA 98409

PRESORT STD  
US POSTAGE  
PAID  
Tacoma, WA  
Permit No. 356

ADDRESS SERVICE REQUESTED



## Happy Dance, Happy Dance - Lower Prices Happy Dance

### Carbide Sale – Buy Now

No pretin	
WEC 7150	0.167
WEC 7200	0.221
WFC 7150	0.291

With pretin	
WDC 7250	\$0.289
WDC 7185	\$0.304
WDC 7280	\$0.343
WDC 7312	\$0.374

Limited quantity on hand  
(We can get more but it takes a few weeks.) These are brand new, top quality tips. They are not surplus or returns. You get a 100% satisfaction guarantee.

### 100% Satisfaction Guarantee Best Guarantee Anywhere

If you are not happy with anything from us we will take it back and give you a full refund. Even if you just ordered the wrong size.

### We Sell Flux That Meets the new Standards

White, Black and Purified Black  
Our Purified Flux meets the new  
EN1045 Requirements for purity and  
Effectiveness

### Much Better Carbide Grades

You really should try our Super C and  
Cermet 2 grades of saw tips.

Super C replaces all grades from about  
a C 1 ½ to a C 3 1/2. It gives much  
longer life and is much harder to break  
than any of these grades.

Our Cermet 2 replaces C-4 and gives  
much, much longer life. The Cermet 2  
is much better than the original cermet  
grades. Cermet 2 grades braze and grind  
just like C-4 carbide but stay sharp a lot  
longer.

### New - Price Cut on Silver Solder - \$28 / oz.

(Silver Solder) Braze Alloy in Small  
Quantities at Good Prices - \$28 / Troy  
ounce (Unless silver goes crazy again)  
800 346-8274

### Want \$1,000.00 or more?

We Buy:  
Carbide Scrap  
Grinding Sludge (any kind of coolant is  
fine)  
Old Carbide inventory

### Make More Money

1. Saving Money on Carbide
2. Saving Money on Braze Alloy
3. Make Money Selling Your Grinding  
Sludge (any coolant is acceptable).
4. Make money selling scrap carbide
5. Make money selling old carbide  
Inventory