



### Classy People

Most of the folks we deal with are really fine, nice folks. Here are just two examples.

#### Andrew Schwartz

Andrew sent us his payment with a little note inside that said "Sorry it's late. Time just got away from me." His payment was due on a Friday and arrived the following Monday. We don't consider that late but we are very impressed by a man who does.

#### A Thank You Note

We received a request to donate something for a company picnic. The request mentioned any logo or promotional merchandise we might have. We went to Toys "R" Us and bought a bunch of squirt guns. Then we went online to get some little flying helicopters. These are just a blade on a stick but the kids love them. About a week or so after the picnic we received a thank you note with the kids' signatures on them.

#### Emily's New Hot Deal

##### Trade T Shirts - 2 for one

Emily, my beloved daughter, and Ace

employee has a new, hot deal for you. Emily is more pregnant every day and finds Large and X-large T shirts to be an

important part of her wardrobe. She really likes shirts from customers. We will make you a deal. We will trade you 2 of our sawfiler T shirts or polos for one of yours. If you are a customer we will be happy to send you one or two free and we sell sawfiler gear online at <http://www.cafepress.com/sawfiler> or you can call 800 346-8274



# Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter July, 2011

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

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

## We Are Cutting Pretinning Prices



Silver is down from its high of \$48.00 per troy ounce. It is now around \$35.00 so we are taking our prices back to where they were in May.

If silver drops again we will also lower our prices again.

## Your Customers are Tough So is Our Carbide



Here is an example of the classic stick test. You braze carbide on then beat on it with a stick. You beat the heck out of it so that wood chips are flying. The argument against this test is that it is not the same as cutting wood. The argument for this test is that it works. As Carroll Sizemore once said "It may not be a perfect test but a saw that fails this test sure isn't going to run in a mill."

**We sell carbide for the real world.**

## Save Money On Carbide

We have some of our inventory that has been here a while as well as inventory from other suppliers. We are selling select sizes at good discounts.

Here are just a few untinned sizes

CWD 7120LT	5,475	\$0.12
CWD 7165C-4	1,500	\$0.16
CWD 7230C-4	3,130	\$0.13
CWD R7215C-3	2,000	\$0.17
CWE 7200C-4	5,250	\$0.15
CWE 7250C-3	2,833	\$0.20
CWF 7140C-1	3,000	\$0.23
CWF 7150C-2	2,500	\$0.23
CWF 7190C-2	4,000	\$0.24
CWF 7215C-1	6,650	\$0.28
CWF 7220C-2	1,000	\$0.27
CWF 7260C-1	4,500	\$0.35
CWF 7260LT	2,998	\$0.35
CWF 7280C-1	2,500	\$0.37
CWG 7125LT	1,783	\$0.16
CWG 7230C-4	2,413	\$0.21
CWG 7270C-3	2,750	\$0.28

## Carbide Is

## Too Expensive

### We Are Going To Change That

1. We are offering really low prices on certain inventory
2. We have dramatically cut our pretinning costs.
3. You get a free, automatic, additional 5% discount off your total purchase of carbide and pretinning if your account is current. If you are past due you still get low prices but no extra discount.
4. There is much more and better to come. We are not going to publish the other stuff. Nobody reads our advertising as well as our competitors do. Call 800 346-8274 and we will be happy to tell you about it.

## Our New Policy

We have always had a policy of freely sharing information. That is changing.

From now on we are dividing the world into customers and non-customers.

We have spent a huge amount of time and money coming up with some really great programs. We want these to benefit our customers and not their competition and certainly not our competition.

We have some really great deals coming up and we want our customers to benefit first.

We have always put customers ahead of suppliers so maybe this isn't that new a policy after all.



### Maybe True?

As collected from the Internet, here's a truly heartwarming story about the bond formed between a little 5-year-old girl and some construction workers that will make you believe that we all can make a difference when we give a child the gift of our time...

### 5-Year-Old's First Job

A young family moved into their new home, which was next to a vacant lot. One day, a construction crew turned up to start building a house on the empty lot.

The young family's 5-year-old daughter naturally took an interest in all the activity going on next door and spent much of each day observing the workers.

Eventually the construction crew, all of them "gems-in-the-rough," more or less, adopted her as a kind of project mascot. They chatted with her, let her sit with them while they had coffee and lunch breaks and gave her little jobs to do here and there to make her feel important.

At the end of the first week, they even presented her with a pay envelope containing \$10. The little girl took this home to her mother who suggested that she take her "pay" to the bank the next day to start a savings account.

When the girl and her mom got to the bank, the teller was equally impressed and asked the little girl how she had come by her very own pay check at such a young age. The little girl proudly replied, "I worked last week with a real construction crew building the new house next door to us."

"Oh my goodness gracious," said the teller, "and will you be working on the house again this week, too?"

The little girl replied, "I will, if those assholes at Lowe's ever deliver the damn sheet rock."

Kind of brings a tear to the eye - doesn't it?

## Free

A steel cased inspection mirror.



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.

## Warning Labels

In case you needed further proof that the human race is doomed through stupidity, here are some actual label instructions on consumer goods.

On Sainsbury's peanuts - "Warning: contains nuts."

On Boot's Children Cough Medicine - "Do not drive a car or operate machinery after taking this medication." (We could do a lot to reduce the rate of construction accidents if we could just get those 5 year-olds with head-colds off those bulldozers.)

On a Sears hairdryer - Do not use while sleeping.

On a bag of Doritos - You could be a winner! No purchase necessary. Details inside.

On a bar of Dial soap - "Directions: Use like regular soap."

On some Swanson frozen dinners- "Serving suggestion: Defrost."

On packaging for a Rowenta iron - "Do not iron clothes on body."

On Nytol Sleep Aid -- "Warning: May cause drowsiness."

On most brands of Christmas lights - "For indoor or outdoor use only."

On a Japanese food processor - "Not to be used for the other use."

On an American Airlines packet of nuts - "Instructions: Open packet, eat nuts."

On a child's Superman costume - "Wearing of this garment does not enable you to fly."

On a Swedish chainsaw - "Do not attempt to stop chain with your hands or genitals."

# Saw Blade Failure In A Truss Plant

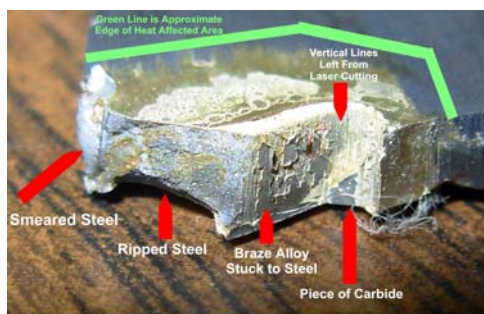
Following is an analysis I did on failure of the saw blade that was used in a truss plant. Truss plants often have the reputation of being hard on tools but in this case the carbide was just highly unsuitable for the intended use.

I did have two people I respect a great deal suggest that perhaps the carbide got a bit hot during brazing or grinding and that what we were seeing was heat fracturing.

My reply to that was that I didn't care because the carbide did not do what the customer wanted it to do.

We sold the customer our Super C grade carbide which ran beautifully. With the C-2 from another supplier they were changing saws every hour. With the Super C they are changing saws daily and thinking about going up for two days.

## Overview



This is a picture of the pocket of a carbide tipped saw blade. The center of the saw is to the right.

The saw plate or saw body was sold as being ready to braze. A pretinned tip, that is a saw tip to which the braze alloy has already been applied, was brazed into the pocket. The tip broke and most of it came out during cutting. The steel either ripped or

snapped and the secondary of the steel was smeared or deformed.

The saw tip rested in the area covered by the two red arrows labeled "Brazed Alloy Stuck to Steel" and "Piece of Carbide".

The braze alloy has a solidus of 1150 F and a liquidus of 1205F. Because the tip had been pretinned we are looking at the remelt situation so we may wish to assume that the new liquidus is about 1250 F. Current practice is to heat to about 50 F over the liquidus which would make it 1300 F.

For purposes of analyzing the grain structure of the steel we should probably wish to consider that 1400 F to 1500 F is possible with the 1400 F being much more likely.

The arrow labeled "Vertical Lines Left From Laser Cutting" is meant to indicate all the vertical lines or vertical marks. In this case, the laser melts a series of holes which are then blown out by a gas. This leaves a surface that has been affected by the heat of melting, that has been heavily oxidized by exposure to the atmosphere while hot and in which carbon migration in the steel is suspected to be an issue in brazing. Best practice calls for grinding the surface back about 0.005 inches to 0.007 inches. In this case it appears that the brazing was done directly to the laser cut surface.

The arrow labeled "Brazed Alloy Stuck to Steel" shows that there are areas where the braze alloy preferred to stick to the steel instead of the tungsten carbide saw tip. The braze alloy is gold in color. It appears gray here because there is a layer on top of it. This layer is the layer surface treatment applied to the tungsten carbide saw tip to make it more wettable.

It appears that about half the braze alloy preferred to stick to the steel and the other half preferred to stick to the saw tip.

The green line at the top indicates the suspected location of the "chill line" or edge of the heat affected zone.

This steel was part of the shoulder behind a tungsten carbide saw tip. It appears that both the steel saw plate and the tungsten carbide saw tip had been improperly prepared for brazing. Thus, when run, the braze joint was weak enough to allow the saw tip to be levered out taking a piece of steel with it. This would be the rough patch. After the tip came out the saw blade was run for a while which would explain the area labeled as "smeared steel".

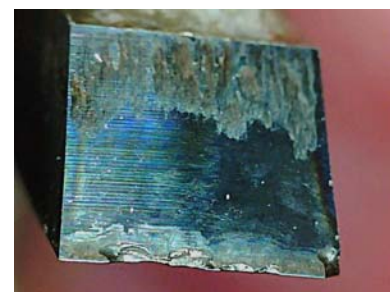
## Conclusions:

1. The steel was ordered as being ready to braze but it was not. It should have been ground back or gummed in the areas where the brazing was to take place.
2. The saw tips were sold pretinned. The carbide had a surface treatment to it so that the braze alloy wet well to the surface treatment but the surface treatment did not adhere well to the carbide.
3. The way the steel snapped is highly unusual.
4. It appears that the assembly was done extremely well. It is possible to quibble a bit but the manufacturing process was well above industry standards.

## Tip Failure



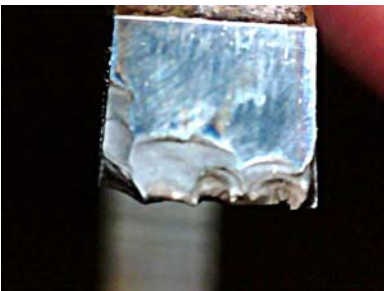
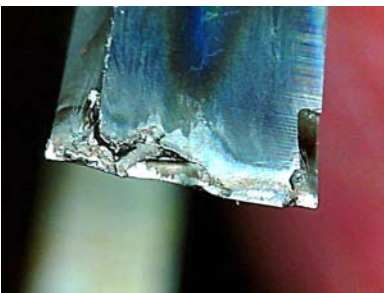
All of the tips that still remain on the saw, invariably show extreme susceptibility to fracturing. Carbide, any carbide or any grade, will break if you hit it hard enough. However it should fracture with rough edges.



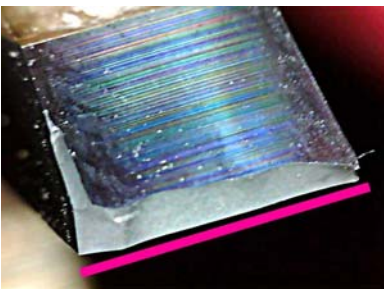
These fractures are also extremely large fracture planes. Fracture planes show you how the fracture traveled through the material. With the carbide it has to fight its way through the material and you have a very irregular, rough fracture plane. With these tips you have a lot of nice, smooth curves indicating that the fracture impact found the equivalent of a superhighway.



An essential point of carbide quality is crack propagation. This is closely allied to crack initiation. Crack initiation is involved with how hard it is to start a crack and, in this case, it looks pretty easy to start a crack. Crack propagation is involved with how fast and how far that crack travels. In this case the cracks propagated through the material beautifully which is just plain wrong.

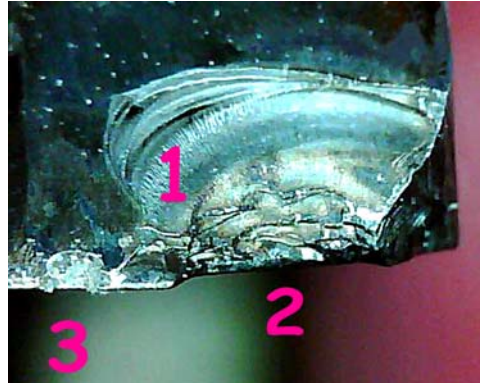


### The Two Worst Examples



In this case, about 90% of the whole front edge came off as a single piece. The pink line shows the area I'm discussing. You can see that it only took three impacts to destroy the effectiveness of this tip. One impact took out 90% of the front cutting surface. Another impact took out the lower left corner. A third impact took out a big chunk along the left side.

Again carbide will fail if you hit it but it should have to be beaten apart. It should not come off in big chunks.



Number one above rests on a line that curves up and to the right edge. This means there was once one big chip that came off as a single piece and destroyed the effectiveness of about two thirds of the top cutting edge of the saw tip. Number two rests just below an area that shows damage from a lot of small impacts. It also shows much better crack propagation properties as the impacts did not travel nearly as far or as smoothly as a given number one. Number three rests below an area that also shows better crack propagation properties.

Better is a relative term. When I say two and three are better than one this in no way applies that any of them are anywhere near being good enough.

### Conclusion:

These tips are eminently unsuitable for this application. A C-2 grade, any C-2 grade should have much better crack resistant properties than these tips shall show. My guess would be that these tips were either made very badly or are a special, much more brittle grade, that was mislabeled C-2.

## Western Saw Filer's Educational Association Conference in September

September 16th and 17th at the Monarch Hotel in Portland, OR.

This year's workshops will be all bandsaws. It will cover bandmill alignment, bandmill maintenance, saw geometry and many other issues related to bandsawing. There will also be workshops on band wheel grinding and tooling.

Some of the most knowledgeable people in the industry will be presenting a series of workshops designed to address a wide variety of problems and solutions to those problems.

We encourage any and all sawmills to send their Saw Filers to this program. Dollar for dollar you will not find a more comprehensive one day workshop anywhere. For less than the cost of a consultant for a day you can send the whole Filing crew to these workshops. The information they bring back to the mill will pay dividends for years to come.

As always, Filers are welcome to invite their Management or Maintenance personnel to join them at the workshops.

For more information please contact Bill Saily at [billsaily@hotmail.com](mailto:billsaily@hotmail.com) or [bsaily@frontiernet.net](mailto:bsaily@frontiernet.net). Hope to see you all there.



**There will be Free Food  
And Beverages plus Door Prizes**

## Looking for a Career Change? (Some antique occupations)

**Acater** - supplied food provisions, e.g. a ships chandler

**Advertisement Conveyancer** - sandwich board man

**Agister** - In charge of the ponies as an official of the Royal Forests

**Ale Taster** - tested ale and beer for quality first recored in 1377 in London. Appointed by the Manor and forerunner of the Inspector for Weights & Measures

**Amen Man** - parish clerk

**Ankle Beater** - young person who helped to drive the cattle to market

**Arkwright** - skilled craftsman who produced "arks" (wooden chests or coffers)

**Avowry** - term for the lord of the manor

**Back Washer** - employed to clean the wool in the worsted manufacturing industry

**Badger** - licensed pauper who wore a badge with the letter P on it and could only work in a defined area (the term "Badgering comes from this"). A corn miller or dealer or an itinerant food trader

**Badgy Fiddler** - boy trumpeter in the military

**Bagman** - travelling salesman

**Bagniokeeper** - n charge of a bath house or brothel

**Bang Beggar** - officer of the parish who controlled the length of stay of any stranger to the parish

**Banker** - dug trenches and ditches to allow drainage of the land, placing the surplus earth in banks around the edge

**Bathing Machine Proprietor** - owned and hired the changing huts used at the seaside in the by bathers

**Batter Out** - sliced a short cylinder of clay (a bat) from a "pug" and threw it onto a mold shaped for the face of a ceramic plate

**Battledore Maker** - made the beaters used on clothes carpets etc to remove the dust (later made the paddles used in washing machines)

**Bead Piercer** - employed to drill the holes in beads

**Beadman / Beadsman / Bedesman** - employed to pray for his employer,

inhabitant of an almshouse / poorhouse / hospital or tenant employed by the manor for a specific service

**Blindsman** - employed by the Post Office to deal with incorrectly addressed letters and parcels

**Blockcutter / Blocker** - made wooden blocks used in the hat trade or laid down the blocks on which a ships keel was laid; a blockcutter was also a person who made and cut the patterns into wooden blocks for textile printing

**Bluestocking** - female writer

**Bluffer** - innkeeper or landlord of a pub

**Boarding Officer** - inspected ships before entering port

**Boardwright** - made tables and chairs aka carpenter

**Bodeys / Body Maker** - made bodices for womens garments

**Bone Picker** - collected rags and bones aka Rag and Bone Man

**Boot Catcher** - servant at inn who pulled off traveler's boots

**Borler** - who made cheap coarse clothing

**Bozzler** - parish constable

**Buckle Tongue Maker** - made the metal points that go in the holes of a belt



### Parent's Dictionary - John Schultz

1. **Dumbwaiter:** One who asks if the kids would care to order dessert.
2. **Family Planning:** The art of spacing your children the proper distance apart to keep you on the edge of financial disaster.
3. **Full Name:** What you call your child when you're mad at him/her.
4. **Grandparents:** The people who think your children are wonderful even though they're sure you're not raising them right.
5. **Independent:** How we want our children to be as long as they do everything we say.

6. **Ow:** The first word spoken by children with older siblings.

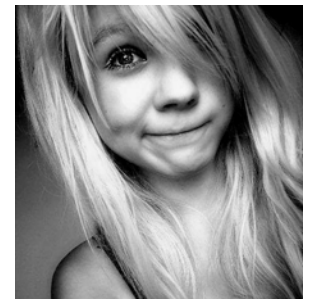
7. **Puddle:** a small body of water that draws other small bodies wearing dry shoes into it.

8. **Show Off:** a child who is more talented than yours.

9. **Sterilize:** what you do to your first baby's pacifier by boiling it and to your last baby's pacifier by blowing on it.

10. **Top Bunk:** where you should never put a child wearing Superman pajamas.

11. **Two Minute Warning:** when the baby's face turns red and he/she begins to make those familiar grunting noises.



# 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

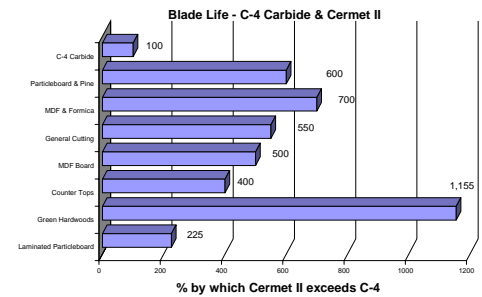


## Cermet II® 8 days instead of 5 in MDF

**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 sharpen 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

# Gun Fight Rules



**Bat Masterson** invented the 3 rules of how to win a Gunfight:

1. Have the balls to stand up to it. If you don't your dead.
2. Be ACCURATE! If you can't hit your target, you're dead.
3. It helps to be fast.



**Clint Smith**, Director of Thunder Ranch.

1. The handgun would not be my choice of weapon if I knew I was going to a fight....I'd choose a rifle, a shotgun, an RPG or an atomic bomb instead
2. The two most important rules in a gunfight are: always cheat and always win.
3. Every time I teach a class, I discover I don't know something
4. Don't forget, incoming fire has the right of way
5. Make your attacker advance through a wall of bullets. I may get killed with my own gun, but he's gonna have to beat me to death with it, Cause it's going to be empty
6. If you're not shootin', you should be loadin'. If you're not loadin', you should be movin', if you're not movin', someone's gonna cut your head off and put it on a stick
7. When you reload in low light encounters, don't put your flashlight in your back pocket.. If you light yourself up, you'll look like an angel or the tooth fairy and you're gonna be one of 'em pretty soon
8. Do something. It may be wrong, but do something

9. Nothing adds a little class to a sniper course like a babe in a Ghilliesuit
10. Shoot what's available, as long as it's available, until something else becomes available
11. If you carry a gun, people will call you paranoid. That's ridiculous. If I have a gun, what in the hell do I have to be paranoid for
12. Don't shoot fast, shoot good
13. You can say 'stop' or 'alto' or use any other word you think will work but I've found that a large bore muzzle pointed at someone's head is pretty much the universal language
14. You have the rest of your life to solve your problems. How long you live depends on how well you do it
15. You cannot save the planet. You may be able to save yourself and your family



1. Don't pick a fight with an old man. If he is too old to fight, he'll just kill you.
2. If you find yourself in a fair fight, your tactics suck.
3. I carry a gun because a cop is too heavy.
4. When seconds count, the cops are just minutes away.
5. A reporter did a human-interest piece on the Texas Rangers. The reporter recognized the Colt Model 1911 the Ranger was carrying and asked him 'Why do you carry a 45?' The Ranger responded, 'Because they don't make a 46.'
6. An armed man will kill an unarmed man with monotonous regularity.
7. The old sheriff was attending an awards dinner when a lady commented on his wearing his sidearm. 'Sheriff, I see you have your pistol. Are you expecting trouble?' 'No ma'am. If I were expecting

trouble, I would have brought my rifle.'

8. Beware the man who only has one gun. He probably knows how to use it!



'The true soldier fights not because he hates what is in front of him, but because he loves what is behind him.'  
- G. K.. Chesterton

A people that values its privileges above its principles will soon lose both. Dwight David Eisenhower

A government that does not trust its citizens with firearms cannot be trusted by its citizens.



A man who cannot defend himself is a pathetic soul.  
A man who may not defend himself is a slave.  
A man who will not defend himself is a parasite.



**She Really was Miss Utah and She Really is a soldier**

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

<p>PRESORT STD US POSTAGE <b>PAID</b> Tacoma, WA Permit No. 356</p>
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**ADDRESS SERVICE REQUESTED**

## **Sell Scrap and Sludge Now!**

**The price is dropping.**

The price of tungsten and thus tungsten scrap is dropping.

It is down by \$0.50 as I write this and looks to be dropping even more. It is till about \$250 - \$300 per 2# coffee can but that is down from \$350.

### **Ship Scrap Cheaply**

USPS Flat Rate boxes. We recommend 11 x 8.5 x 5.5 size with tape on it. It cost \$10.95 to ship anywhere in the US. It holds maybe \$400 to \$500 worth of scrap. Scrap prices vary daily. Today, July 14, we are paying \$8.00 with braze alloy on it and \$8.50 per pound with no braze alloy. It helps if you put the scrap into coffee cans, boxes, or plastic bottles and then put those in the box.

## **Carbide Is Too Expensive We Are Going To Change That**

1. We are offering really low prices on certain inventory
2. We have dramatically cut our pretinning costs.
3. You get a free, automatic, additional 5% discount off your total purchase of carbide and pretinning if your account is current. If you are past due you still get low prices but no extra discount.
4. There is much more and better to come. We are not going to publish the other stuff. Nobody reads our advertising as well as our competitors do. Call 800 346-8274 and we will be happy to tell you about it.

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

Super C replaces all grades from about a C 1 1/2 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.

## **Braze Alloy in Small Quantities at Good Prices**

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