



Why I love This Business (most of the time)

Brad Jorgensen
Agency Plains Grinding
In Madras, Oregon

Stopped by to sell us some of his scrap. Emily usually handles that but she wasn't available. Renee' didn't know the exact price so I guessed. I told Mr. Jorgensen what I could pay and he told me that I was quoting a price higher than what the girl on the phone had told him. In effect he was reminding me that I was offering him more money than he was expecting. That is a really honest thing to do. In my experience this industry just seems to a whole bunch of honest, genuinely nice folks. I think we could all use a few multi-million dollar bonuses but getting to do business with nice, honest folks goes a long way with us.

Tom Walz

"Super C" Grade



**Tougher than C1
Lasts longer than C3
Solving Problems for 4 Years**

Our Super C grade is truly great. Over 90% of the people who try it really like it. It really is both tougher and longer lasting.

Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter July, 2010

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

sales@carbideprocessors.com www.carbideprocessors.com

Excellent Carbide Every Time

Five years ago, or so, we worked with several customers to determine what carbide saw tip quality really was.

Originally it was Norm Brown of Simonds. We worked with him off and on for a year or so to develop the charts inside. Next it was the folks at Peerless Especially Ken Lloyd, Tim Gase, Steve Hartshorn and Paul Duclos. Johan Holm of Ceratizit was a great help. No one showed a bigger commitment to quality carbide that Helge Motzer, president of Tigra. Twice he made large batches of carbide that were as good or better than the competition. However they were not the very best and they were not good enough for him so he scrapped them all. It scares me to think about how much money he spent and then scrapped. Finally the folks on the Internet, especially Tim Cook's discussion group, were a huge help.

Thanks to all these folks and others you should get 100% great carbide every time. You should get exact counts with tight tolerances and no chips, crack or other defects. And it should braze beautifully every time.

The Most Important Point About Carbide

The most important point about carbide is to buy from us, Carbide Processors at 800 346-8274 or sales@carbideprocessors.com

Sure the other folks mentioned are fine people but, hey, this is our newsletter.

We came up with a chart on page 3. Feel free to use it when you buy carbide.

KCr06 Carbide Grade

This spring I analyzed several saw blades from different customers that had the same failure with the same carbide. The grade was KCR06 and the problem was tip breakage.

I reported what I saw as honestly as I could. After the report got out I received a call from Johan Holm of Ceratizit. He pointed out that the tip breakage I saw was on retipped saws. He then went on to point out some of the possible differences between what I saw and what others might see.

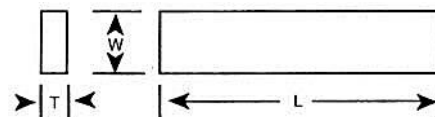
Essentially I pointed out that the grade wasn't tough enough for the applications I saw. Johan pointed out that it was an excellent grade, widely used in many, many applications.

We were both correct, just looking at it from different viewpoints. I told the truth as I saw it. If you want another side you can call Johan at Ceratizit at 800 334 - 1165. I have always found Johan to be very honest and open.

See the story of The Blind Men and the Elephant on page 2.

Cut your inventory with Super C

We have been suggesting Super C as an attentive to any grade between C1 and C3 for a couple years. If you wanted to you could just order and stock Super C instead of stocking 3 separate grades.



Super C now in flat, straight and square strob bars, STB's and special shapes.

The Elephant and the Blind Men

Once upon a time, there lived six blind men in a village. One day the villagers told them, "Hey, there is an elephant in the village today."

They had no idea what an elephant is. They decided, "Even though we would not be able to see it, let us go and feel it anyway." All of them went where the elephant was. Every one of them touched the elephant.

"Hey, the elephant is a pillar," said the first man who touched his leg.

"Oh, no! It is like a rope," said the second man who touched the tail.

"Oh, no! It is like a thick branch of a tree," said the third man who touched the trunk of the elephant.

"It is like a big hand fan" said the fourth man who touched the ear of the elephant.

"It is like a huge wall," said the fifth man who touched the belly of the elephant.

"It is like a solid pipe," Said the sixth man who touched the tusk of the elephant.

They began to argue about the elephant and every one of them insisted that he was right. It looked like they were getting agitated. A wise man was passing by and he saw this. He stopped and asked them, "What is the matter?" They said, "We cannot agree to what the elephant is like." Each one of them told what he thought the elephant was like. The wise man calmly explained to them, "All of you are right. The reason every one of you is telling it differently because each one of you touched the different part of the elephant. So, actually the elephant has all those features what you all said."

If You Know A Little Girl



These are sensational. It is a Fairy Princess, Magic Wand. When you press the button it lights up, sparkles and makes a sound like bells. \$4.99 at Toys R Us. Be careful to test it first as a fair percentage of them don't work.

See a demonstration on YouTube.
<http://www.youtube.com/watch?v=xbpgcjByiMY>

Old Men

From Monte Murphy
 Murphy Saw in Oregon

An old prospector shuffled into the town of El Indio, Texas, leading an old tired mule. The old man headed straight for the only saloon in town to clear his parched throat. He walked up to the saloon and tied his old mule to the hitch rail. As he stood there, brushing some of the dust from his face and clothes, a young gunslinger stepped out of the saloon with a gun in one hand and a bottle of whiskey in the other.

The young gunslinger looked at the old man and laughed, saying, "Hey old man, have you ever danced?" The old man looked up at the gunslinger and said, "No, I never did dance... never really wanted to."

A crowd had gathered as the gunslinger grinned and said, "Well, you old fool, you're gonna' dance now," and started shooting at the old man's feet. The old prospector, not wanting to get a toe blown off, started hopping around like a flea on a hot skillet. Everybody was laughing, fit to be tied.

When his last bullet had been fired, the young gunslinger, still laughing, holstered his gun and turned around to go back into the saloon. The old man turned to his pack mule, pulled out a double-barreled shotgun, and cocked both hammers. The loud clicks carried clearly through the desert air.

The crowd stopped laughing immediately. The young gunslinger heard the sounds too, and he turned around very slowly. The silence was almost deafening. The crowd watched as the young gunman stared at the old timer and the large gaping holes of those twin barrels.

The barrels of the shotgun never wavered in the old man's hands, as he quietly said, "Son, have you ever kissed a mule's ass?"

The gunslinger swallowed hard and said, "No sir..... but... I've always wanted to."

There are a few lessons for us all here:

1. Never be arrogant.
2. Don't waste ammunition.
3. Whiskey makes you think you're smarter than you are.
4. Always, always make sure you know who has the power
5. Don't mess with old men; they didn't get old by being stupid.

I just love a story with a happy ending, don't you?

Quality Specifications for Carbide Saw Tips

Counts

1. All counts will be – zero to +2 parts per 250

Size

1. $-0 / +.007''$ is industry standard
2. $-0 / +.004''$ is current practice

Internal cracks
prohibited



Chips and cracks

1. Chips no more than one half the grinding tolerance.
2. Chips no more than 0.003" in any dimension.
3. No internal or external cracks

We used 30x magnification for inspection with standard light.

The gap on the right side of this tip is about 0.003". On the left side the gap goes up to about 0.007" with the largest chip about 0.003"



Edge radius, chips and parallelism

When the part is held next to a straight edge the maximum gap will be no more than 0.007" to account for the total of edge radius, chips and parallelism.

Wettability -

1. A small piece of silver solder (app. 1/5 the length of the surface) will flow completely and evenly out to all four corners.
2. A piece of silver solder 2/3 as long as the tip surface will flow out evenly to all four corners and will create a smooth, consistent hump.



Pretinning

Even flow to all four corners

Average pretinned silver depth is 0.007" to 0.010"



Bond Strength

The tip will braze to the steel plate so that the carbide will break or the steel will rip but the tip will not come off. These two pictures show tips where the surface treatment peeled off.



Grades

Each grade will be specified and defined by grain size, chemistry, transverse rupture strength and hardness, preferably Rockwell hardness

Chemistry

Each batch will have available a chemical analysis if requested.

Another reason I love the tool business. I bought Costco play sets for the grandkids. I went over to help put them together and my son was using an electric drill with a keyless chuck and round shank bits. It didn't take much force before they began slipping. He was also using a hand ratchet to tighten bolts. I got him an impact drill / driver with a keyed chuck and square or hex shanked tools. It made a huge difference. It would take all the force he could handle and it was much, much faster than using a ratchet by hand. I just love the part where the right tool can make such a huge difference.

Free Posters

We did this for a saw shop customer. It is not an official OSHA poster but the legal citations definitely are official. We even laminated it. If you would like one or more copies for the shop and your salespeople just ask. Carbide Processors 800 346-8274 or sales@carbideprocessors.com

It is Illegal to Use Cracked Blades

A Guide for Protecting Workers from Woodworking Hazards
U.S. Department of Labor OSHA 3157 - 1999
<http://www.osha.gov/Publications/osh3157.pdf>

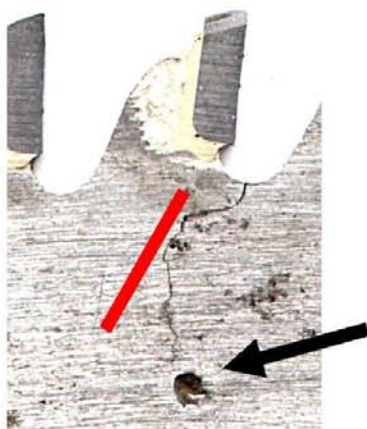
You must also remove any cracked or damaged blades from service. Keep circular saw blades round and balanced. You must remove dull, badly set, improperly filed or improperly tensioned saws from service, and immediately clean saws to which gum has adhered.

Occupational Safety and Health Standards
Regulations (Standards - 29 CFR) Part Number: 1910, Subpart: O
Machinery and Machine Guarding Standard Number: 1910.213
• Title: Woodworking machinery requirements.

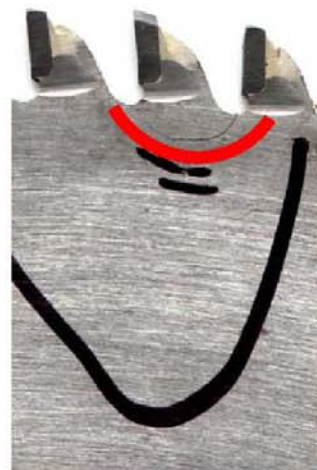
1910.213(s)(1) Dull, badly set, improperly filed, or improperly tensioned saws shall be immediately removed from service, before they begin to cause the material to stick, jam, or kick back when it is fed to the saw at normal speed. Saws to which gum has adhered on the sides shall be immediately cleaned.

1910.213(s)(5) Sharpening or tensioning of saw blades or cutters shall be done only by persons of demonstrated skill in this kind of work.

1910.213(s)(7) All cracked saws shall be removed from service.



Above is a typical crack just to the right of the red line. The arrow points to where the plate was punched to stop the crack. Punching or drilling holes to stop cracks is illegal.



You can see a crack in the plate just above the red curve. The crack runs from one gullet to the next.

Also from Monte Murphy

Monte and I both have a deep love of America as do many of you. I named my first child Benjamin Patrick after Benjamin Franklin and Patrick Henry. Monte sent me these quotes which seem very important and appropriate lately.

“When we get piled upon one another in large cities, as in Europe, we shall become as corrupt as Europe.”

Thomas Jefferson

“The democracy will cease to exist when you take away from those who are willing to work and give to those who would not.”

Thomas Jefferson

“It is incumbent on every generation to pay its own debts as it goes. A principle which if acted on would save one-half the wars of the world.”

Thomas Jefferson

“I predict future happiness for Americans if they can prevent the government from wasting the labors of the people under the pretense of taking care of them.”

Thomas Jefferson

“My reading of history convinces me that most bad government results from too much government.”

Thomas Jefferson

“No free man shall ever be debarred the use of arms.”

Thomas Jefferson

“The strongest reason for the people to retain the right to keep and bear arms is, as a last resort, to protect themselves against tyranny in government.”

Thomas Jefferson

“The tree of liberty must be refreshed from time to time with the blood of patriots and tyrants.”

Thomas Jefferson

“To compel a man to subsidize with his taxes the propagation of ideas which he Disbelieves and abhors is sinful and tyrannical.”

Thomas Jefferson

“I believe that banking institutions are more dangerous to our liberties than standing armies. If the American people ever allow private banks to control the issue of their currency, first by inflation, then by deflation, the banks and corporations that will grow up around the banks will deprive the people > of all property - until their children wake-up homeless on the continent their fathers conquered.”

Thomas Jefferson said in 1802:

How to solve Problems

Lawrence, Kansas, December 12, 2008

A Kansas farm wife called the local phone company to report her telephone failed to ring when her friends called - and that on the few occasions, when it did ring, her dog always moaned right before the phone rang.

The telephone repairman proceeded to the scene, curious to see this psychic dog or senile lady.

He climbed a telephone pole, hooked in his test set, and dialed the subscriber's house.

The phone didn't ring right away, but then the dog moaned and the telephone began to ring.

Climbing down from the pole, the telephone repairman found:

1. The dog was tied to the telephone system's ground wire with a steel chain and collar.
2. The wire connection to the ground rod was loose.
3. The dog was receiving 90 volts of signaling current when the number was called.
4. After a couple of jolts, the dog would start moaning and then urinate.
5. The wet ground would complete the circuit, thus causing the phone to ring.

Which demonstrates that some problems CAN be fixed by pissing and moaning. Thought you'd like to know.

Just in Case You Have a Lot of Money to Throw Around



Breville One-Touch Tea Maker

\$250 You can pay \$250 for a single-purpose tea maker. Fill the tea basket with loose leaves, press a button, and the basket automatically lowers into the hot water like an elevator before pulling back up when the seeping is complete. As with many coffeemakers, you can program this tea maker to have perfect tea ready and waiting when you wake up in the morning.



\$300 A see-through toaster — a \$300 countertop showpiece that toasts the bread behind a double pane of glass.



Wesco Spaceboy XL Trashcan
\$250 A rocket-like trash can.



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 resistant 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**

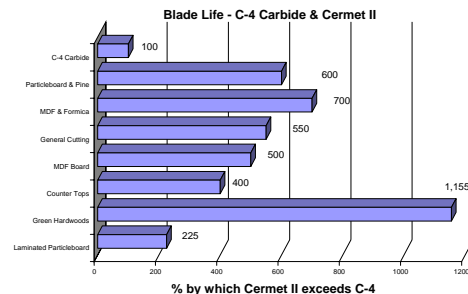
6. 305 mm (12") 60 teeth cutting MDF, High Pressure Laminate (Formica)

* 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

Several times the life in a window and door plant.

3 times the life in Corian.

8 days instead of 5 in MDF and we have an even better grade coming.

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 sharpened? We normally have our carbide tipped blades sharpened every week.

The new Cement II blade normally last 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.

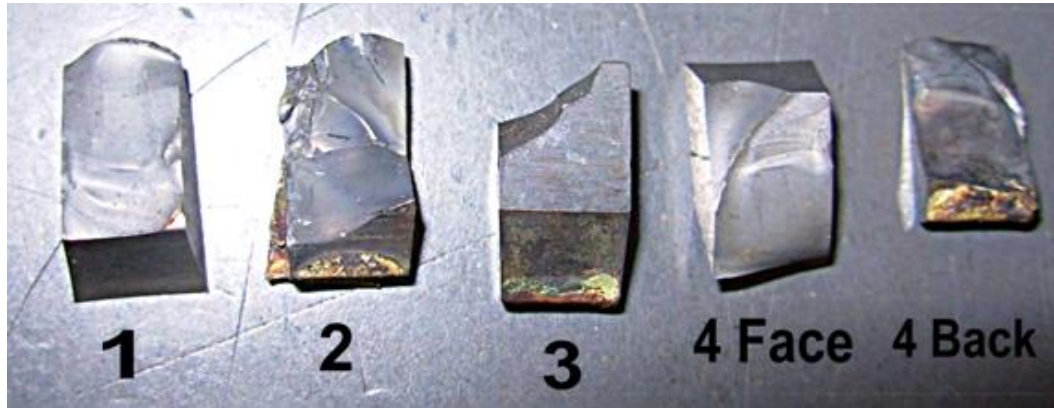
Hope this helps and keep up the good work on those tips.

Nathan Hull, Grinderman
Marvin Wood Products

Tip Breakage Analysis

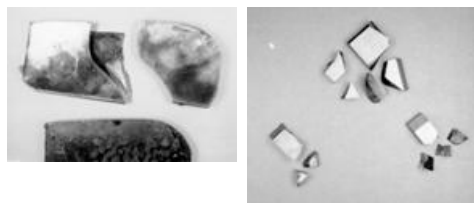
Problem: Tips are highly susceptible to breakage even during routine handling.

Five pieces were submitted for analysis. The two right parts are from the same tip.



Executive Summary: The carbide is not strong enough for the application because it is not a suitable grade, because it was not manufactured properly or a combination of both. It also appears that improper brazing was a contributing problem.

I cannot see any evidence of mishandling. If the carbide had been strong enough you would much more surface roughness instead of the huge, smooth fracture planes. You would also expect to see a great deal of chipping and spalling on the edges and there is no evidence of any of that.



Split Carbide left and broken carbide Right.

Analyzing Carbide Breakage

There are many ways of analyzing carbide breakage. The first step is

always an observation of how the parts broke. Carbide breaks in essentially two ways. The first way is that it splits. This leaves a nice, smooth, even surface. The second way carbide breaks is that it gets beat apart. This leaves a very rough surface. Carbide crack initiation and propagation are controlled by the carbide mixture formulation and the manufacturing process.

Carbide Should be Tough

Some carbide grades are much tougher than others and thus more likely to break. Modern carbide grades have solved many of these problems but they are not as widely used as they could be because they cost a bit more. To give an idea of toughness I have seen a customer bounce a carbide tipped saw on a concrete floor with no damage. Carbide should be hard to break even when beaten with a steel hammer. As a demonstration I fired carbide out of a shotgun and into a concrete block wall with no damage.

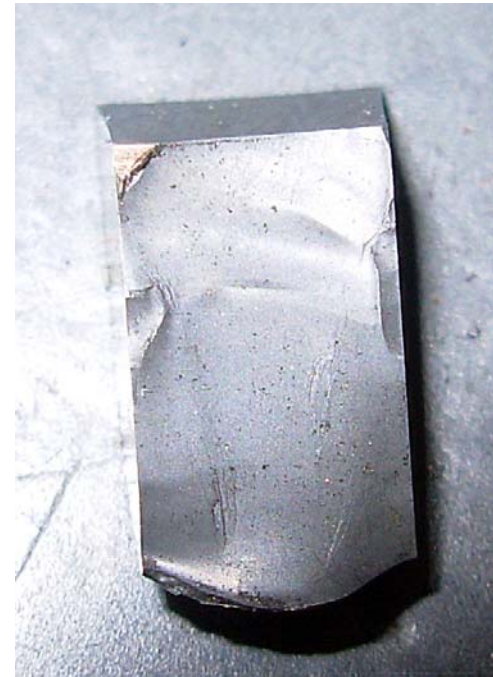
Brazing Stress or Heat Stress

The brazing process can stress the carbide so that it is more susceptible to breakage.

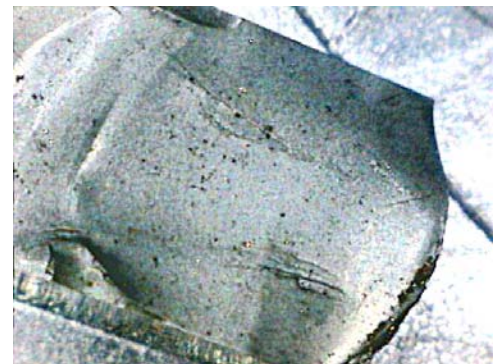
Essentially braze alloy does three things. 1. It holds then tip on the saw. 2. It provides a soft layer between the carbide and the steel to relieve heat stress. 3. It provides a layer which acts with the steel and the carbide to form a composite structure that makes each part much

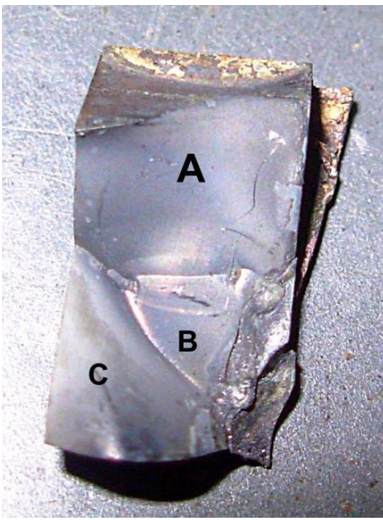
stronger and better able to resist impact forces.

In this case it appears that there may not be a thick enough layer of braze alloy between the carbide and the steel. The saw was not provided for examination but the pictures seem to show that a great deal of braze alloy was forced out of the joint during brazing.



Tip 1. This break shows what is essentially one smooth fracture plane. The carbide was not beaten apart but ruptured nicely. This part is also speckled with what might be holes or foreign material. This could be contamination from handling after the fracture.

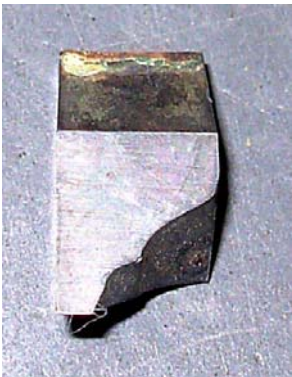




Tip 2.

This tip was a little harder to break. It shows three separate fracture planes. However the tip essentially split very readily.

Big smooth areas means the carbide ruptured or split like splitting wood. The rough are is more like trying to split plywood. Plywood won't split. You have to sort of beat or chew your way through it.



Tip 3. is very interesting

because there is no way that brazing could be a contributing factor due to the location of the breaks. There are three smooth fracture planes where the carbide just split.



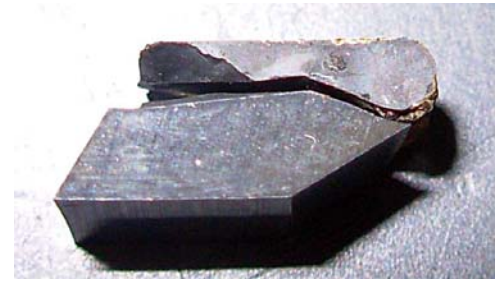
Tip 4.

We have two mating parts of tip 4. The bottom part is much darker because it was removed with a torch from the steel saw body after the fracture occurred.

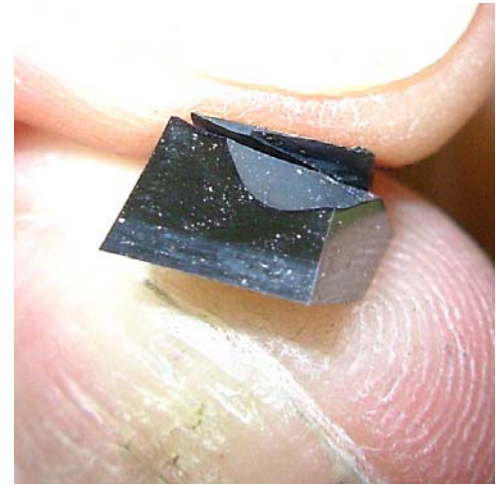
Again we see the smooth fracture planes.



Tip 4 also shows the smooth curve which is the classic heat stress curve. The curve appears to break at two points so the cause was not all heat stress.



Above we see tip 4 from two sides. Both sides exhibit signs characteristic of rupturing or splitting caused by heat stress.



Above we see the tip from the top with the two parts in place. There is also large piece missing which is not indicative of heat stress.

Summer is Here



We hope you are having this much fun.

**NW Research Institute, Inc.
Carbide Processors, Inc.
3847 S. Union Ave.
Tacoma, WA 98409**

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US POSTAGE
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Tacoma, WA
Permit No. 356

ADDRESS SERVICE REQUESTED



Who's Awesome

You're awesome (and awesome dog knows.)

Saw Filing Job

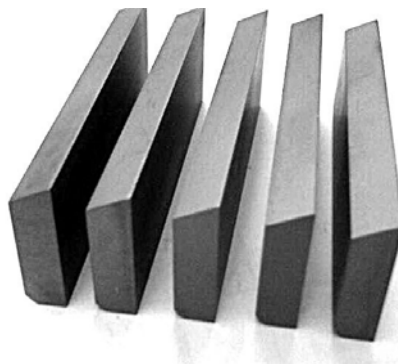
Bay Area Saw is looking for a Saw filer. Call John at ay Area Saw & Service in Hollister, CA 95024 (831) 637-3940

Saw Tips \$0.10

30,000 carbide tips more or less - about 100 sizes Call, email or fax for list. 800 346-8274, Fax 253 476-1321 or sales@carbideprocessors.com

Best Carbide We Have Ever Seen

We have a new carbide supplier and it is the best carbide we have seen since we started in 1981. The saw tips are great and the strob bars and other special parts are truly excellent.



Besides excellent quality the prices are really good. You really should try these. Call Emily (800) 346-8274

We Buy Scrap Carbide And the prices are back to being good.

Prices change daily so Call Emily at 800 346-8274

Service Saws Faster and Easier

When we were in New York we got to meet Bruce Moore of Wagner Lumber. He told us he really liked our tips because they don't wear nearly as much as other tips. When he takes the saws off they only need a couple quick passes to restore the edges. It is fast and easy and really helps cut down saw service times.

Happy Summer

If you are reading this you really deserve it.