

Carbide Processors Inc.

Newsletter

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

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tomwalz@email.msn.com www.carbideprocessors.com

Pretinning



Saw tips should stay on the saw - Ours do & they are harder to break

Always specify Genuine "Carbide Processors Pretinning". "Our Tips Work."

Guarantee - If we pretin the tips and you are unhappy with them for any reason we will replace the tips with carbide from wherever you want at no cost to you.

New Service from Carbide Processors, "Order tips and pretinning direct. Notify us of your instructions by fax or E-Mail or we have details available "as close as your phone"

We are getting a lot requests for help from people who are having serious tip loss and / or tip breakage

In many of these cases the customer thought they were getting our tips and they were not. In other cases they were told they were getting something just as good.

Nobody else is as good at pretinning as we are. We have a book of 150 pages about pretinning and that is just the part we want to make public.

**Always use Carbide Processors
Our tips work**

Why diamond wheels wear out

a) Protrusion. The diamond particles do not stick out high enough above the matrix to cut.

b) Drop-out. Particles are pulled out of the surface of the wheel, which is an indication of the ability of the bond to retain the diamonds.

c) Partial drop-out. Some diamond particles are impacted by cutting force and cutting heat, resulting in partial drop-out of the particles. In general these grits also have cutting edges.

d) Flattening. Diamond particles are flattened by the abrasive wear against the tungsten carbide, causing cutting force and temperature to increase. Some flattened faces will be broken by impact during cutting to form new sharp cutting edges.

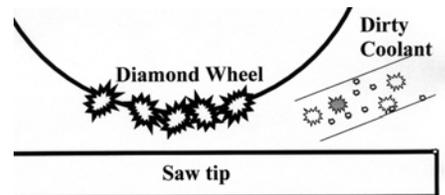
e) Face chipping. Some diamond particles are heavily fractured and have rough surfaces. If the face chipping is not serious, new cutting edges can form.

f) Microchipping. These particles have the most effective cutting edges and have a good appearance. These constantly chip so there is always a new, sharp edge exposed.

The most important factor is the microcracking in the diamond particles produced by cutting impact.

The cutting process can be optimized when the relationships between wheel life, coolant, cutting parameters and tool tip material have been analyzed so that suitable cutting impact and bond wear are obtained.

The effectiveness of clean coolant in reducing diamond wear is evident.



Dirty coolant has large particles that shatter diamond.

How To Tell A Good Pretinned Tip

1. Shiny surface because it is clean
2. Smooth hump because the surface wet well.
3. Alloy flowed to the edges and only to the edges.
4. Surface is micro-roughened for superior bond strength
5. Every tip the same

Solving Tip Loss Using Your Thumb



This is a 4x photo of four failed tips. You can see the grind marks on the steel in all four tips. You can also feel the grind marks by dragging your thumbnail over them. The grind marks can even be seen faintly with the naked eye in some places



Above is a photo of a tip on the same saw. This tip did not come off. We ground the tip and carbide to expose the braze joint. There is very little braze alloy between the steel and the tip

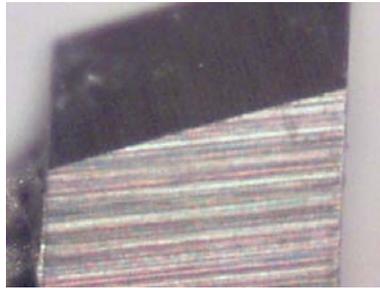
Also, there was a great amount of braze alloy on the plate behind the joint. It looks like these tips were inserted too firmly. It appears that enough force was used to push the tip in so that the alloy was all forced out. Typically a brazer will feel the tip “suck” in and will then just wiggle it a little.

There is very little if any braze alloy sticking to the steel so the steel body may not have been properly prepared. The first guess in this kind of a situation is inadequate cleaning which left some oil or grease in the notch.

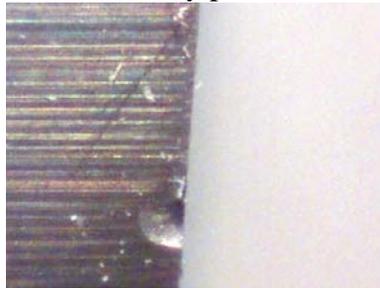
Making Cermet tipped saws

You make a cermet tipped saw about the same way you make a carbide tipped saw. When we treat them they braze the same. You can use a torch, induction or whatever you are using now.

You can use any good quality grinder. It must be a sturdy, rigid machine. Cermets are much more wear resistant than carbide so they are harder to grind. You need a different set of diamond wheels. If you use carbide wheels to grind cermets they will grind them but there will be a huge amount of rubbing action and a lot of heat that will thermally stress the cermets.



Good Grind Nice even grind. No chips, no cracks, very slight hone on the edge. This was run and the customer was very pleased



Bad Grind Cracks and a big chip
This saw was the first attempt by a saw shop. They used the wrong wheel and ground to hard.

You need to grind about half as fast. We suggest that you grind to an edge that looks chip free at 30-power magnification and you need a lot of really clean coolant.

When you are through grinding take a fine hone and lightly hone the edges. We recommend at least 400 grit. Cermet edges can get much sharper than carbide. They can get so sharp that they are thin enough to chip easily. Once they chip they are rapidly destroyed. If you hone the edge you can prevent chipping and the cermets then run beautifully for many times as long as carbide.



These are hones from Travers. They are 400 grit and they are working well for many people.

These are not 'miracle' saws
Cermet tipped Saw are getting a huge number of really good reviews.

These saws do work better in some applications than others just like every other saw. In all saws the differences in tooth count, grind configuration, hook angle and other factors can make a big difference in how well the saws work. Cermets cut differently than carbide. Most times cermet tipped saws cut better than carbide but sometimes they do not work quite as well.

Run cermet saws faster than carbide. Cermet really starts working at the kind of speeds and feeds where carbide performance drops off. Cermets are like 2nd gear in a car and carbide is like 1st gear.

There have been reports that cermets used to cut highly fibrous material such as fiberglass or fiberboard do not cut quite as well as carbide when they are run at the slow carbide speeds.

As with any tool, a big part of the success is the skill of the tool user.



23 Top Reasons to Filter Coolant

Make more money

1. Longer Machine Life
2. Longer time between rebuilds
3. Less downtime
4. Less equipment replacement
5. Faster operation
6. Faster cycle times
7. Fewer wheel replacements

Better quality

8. Smoother grinds

Greater Lubricity with clean coolant

9. No burning
10. Cooler grinding

Reduced consumable costs

11. Longer coolant life
12. Longer grinding wheel life

Reduced Labor

13. Less machine maintenance
14. Less dressing required

Cleaner workplace

15. Perhaps increased operator safety
16. Retards bacteria growth
17. Eliminate smells

Fewer problems

18. Less OSHA exposure
19. Less EPA exposure
20. Less waste
21. Cleaner waste
22. Lower coolant recycling costs
23. Turn an expense into income

Unfiltered Filtered New
Filtering takes typical dirty coolant and makes it like new

Coolant Filtering Works

It Saves You a Lot of Money

Coolant Filtering can cut diamond wheel costs by 25 % to 30%, save 75% in maintenance and disposal costs and pay for itself within the first year. Coolant Filtering removes metals, bacteria and fungus. It helps keep the coolant clean and working right

particle count - parts / cc	size	number	filtered	% removed
microns	dirty			
<1	0	17,209		
1	140,317	25,575	81.77%	
2	14,382,515	21,432	99.85%	
3	15,364,737	9,720	99.94%	
4	19,644,411	4,223	99.98%	
5	13,751,087	2,550	99.98%	
6	9,120,620	1,673	99.98%	
7	1,894,282	558	99.97%	
8	631,427	239	99.96%	
9	420,952	80	99.98%	
10	280,634	478	99.83%	
11	0	319		
12	140,317	0	100.00%	
13	70,159	159	99.77%	
14	70,159	0	100.00%	
15	140,317	80	99.94%	
16	70,159	0	100.00%	
17	65,774	32	99.95%	
18	85,506	112	99.87%	
19	26,309	80	99.70%	
20		48		
21		16		
totals	76,299,682	84,583	99.89%	

Everybody is doing it

Coolant filtering has been a standard practice in aircraft and big three automotive machine shops for decades. It is now getting very popular in saw and tool grinding operations. It has always been a proven practice in automotive cars and trucks. The real reason for filtering grinding coolant is the same reason you filter oil and air in your car or truck. You get better

performance, longer life and much lower overall costs. The fact that everybody is starting to filter coolant or look at filtering coolant means that there are definitely advantages to it for a lot of people in filing rooms and saw and tool shops.

Example: Jerry Betzing of Empire Tool & Sharpening in St. Peter, Minnesota has been using one of our Coolant Filter Systems (a CP2002) for almost 3 years. He says it performs beautifully and enables him to produce quality work first time, every time. His repair and maintenance expenses for his grinders have dropped since he started filtering. He uses mist-packs on his grinders to make sure the air in his shop is clean and he has a water-softening system for use in his coolant and his clean-up operations. He says that the soft water reduces cobalt leaching by about 60%.

Reduce Diamond Wheel Costs - save \$3,000 to \$10,000 per year

A good grinding operation will still dump huge amounts of oil and grease into the sump. We ran a test on a high production machine. In twenty-two days of double shift we pulled out about ten pounds of oil and grease. Oil and grease clogs the wheel. Clogged wheels mean slower grinds, worse quality and shorter wheel life. Clean coolant increases diamond wheel life by at least 30% overall and as much as 50% depending on the wheel and application. You save 25% to 35% of your annual diamond wheel cost.

Longer Coolant Life

Save \$1,000 a year per machine If you filter your coolant you will get much longer life. In actual tests we see coolant last six months and it is still doing an excellent job. This saves you on coolant costs and the maintenance of sump cleaning and coolant changing.



Please Call

We're glad you like our newsletter
We sure would like your business

Free Information

Our books on making saws and managing coolants are on the web
www.carbideprocessors.com

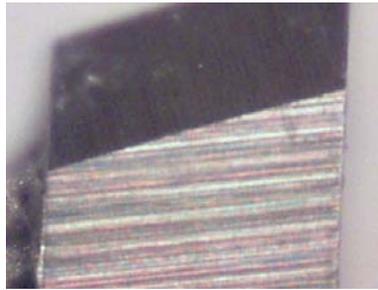
This is good information not available anywhere else. Once you see this you will realize how hard we work and how good we are. The next step will naturally be to buy from us.

We can still sell these as paper books if you wish but Kinko's charges a fortune to have them copied, printed and bound.

We think it is important to leave the world a better place than we found it so there is also a lot of free information where we won't make a dime.

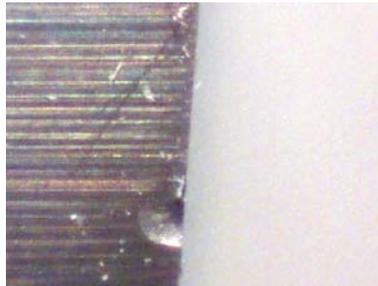
Grinding cermet tipped saws

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How to make Cermet tipped saws P. 2

Filter systems
From \$74 /month
New lease program



CP 2002 in a multi-million dollar saw shop - Part of what makes this shop "White Shirt" clean and very profitable

CP 2002 NEW - Easy Prime feature - also available as a retrofit "Customers Preference"



Cost Effective, "ROI, Year or Less"

Easy to Own

1. Purchase Order
 2. Visa or MasterCard
 3. 90 Days, Same as Cash (SAC)
 4. Or Lease to Own 36 months
- Pre-paid freight during July sale**

Northwest Research Institute, Inc.
Carbide Processors Inc.

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