Carbide Processors, Inc.

Northwest Research Institute, Inc.
Newsletter October, 2007
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sales@carbideprocessors.com www.carbideprocessors.com

President's Message
Tom Walz, Editor & Emily Erskine

Who Should Do Purchasing?
Charles Lee Head Filer
Cascade Wood Products
White City, Oregon

I think Steve is correct as well. Filers should be able to buy what they (need) key word need, and not what they want. In some cases what they want could be useless buying. What we need to remember is that a good concerned filer will Not take advantage of the mill he works for. Also a good filer does know what he needs first and foremost. Randy and I work well together.

I think Mr. Lee hit on some key points as did the others. Some people you can trust and some you cannot.

I do think that a filer ought to be able to spend a little money to experiment. Further I do not think a filer should have to use something that does not work well enough.

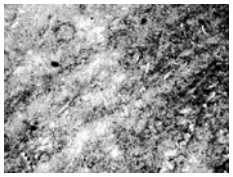
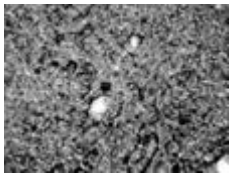
I have seen filers who couldn't try anything new. I have also seen filers forced to use bad quality materials. I think both are wrong.

Maybe it is just the filers we work with but they seem to be honest, conscientious people who realize that the mill has to stay profitable if they want to keep their jobs and who work hard and intelligently to help that process.

Steve Fogg of Buse Lumber is in purchasing and says his job is to help the filers get what they need.

Of course some folks are as easy to work with as a mule in a rowboat

Purified Flux Thrills Brazer

Purified left & standard Black right

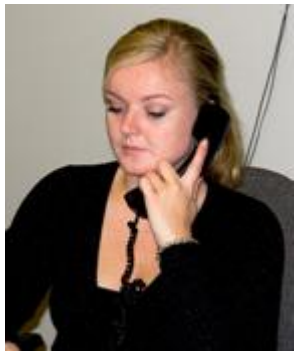
Purified flux is standard black flux but it is cleaner, smoother and 100% active ingredients. It is specifically made for use between two parts. Ordinary Black flux is about 90% active ingredients and about 10% inert materials. It is made to be used outside the braze joint.

About 85 – 90% of people using purified flux really like it according to Emily. Jackie says she has only had two people who have tried it and don't like it. It might be worth a try.

Ken Ruffin was brazing in NC and was losing all of his tips. Jackie suggested Purified Black flux. Ken called back and said that the flux made all the difference in the world! He said tell you "thank you so much!" He said and I quote " my brazing skills are lookin really good!" He was so excited and thanked us up and down and all over the place, and even said it was so nice that we sent a thank you card and candy.

Truly Great Brazing Video

Don Wallinger at West Coast Saws and the Hartleys at Anthony Forest Products actually made this in two parts. The reviews have been great. This is a tremendously helpful video. It shows two different ways of brazing carbide, both of which work very well. The Hartleys braze the same blade over and over while West Coast Saws makes a huge variety of special blades. We can sell you a CD, DVD or VHS tape for $20.00 if you wish. The video is free on line at http://www.tools-woodworking.com/video.html



Pretty, Sweet & Tougher Than Nails

Jeff Galloway, Lead Saw Filer, at Alder Creek Lumber in Portland Oregon thinks so. Jeff says that he loves our tip. He ran the tips on his saws that accidentally sawed 12 penny nails and when he took the saws off there wasn't even one tip missing or broken.

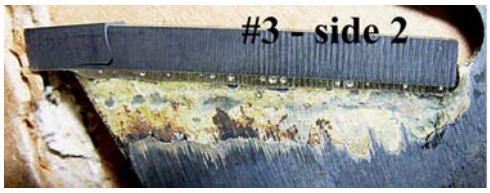
He said he loves our tips, they last so much longer than any he has used and he just wishes he could order more, but they last so long he doesn't need to order as often...so he says he'll send us as much business as he can.

He also says that I should let "all your people there" know that we're doing a great job and he's a big fan of our pretinning too!

Buying Carbide Scrap Almost a tragedy

We got a call about a scrap check. Our policy is to pay in thirty days after we get the scrap. In this case the scrap check was going for a fishing trip for the filing room and we were asked if we could get it out a little early. Once we found out that it was that important there wasn't any question about bending the policy. Scrap policy seems to vary quite a bit from place to place. Sometimes it is a fishing trip or a party. Some times it is a fringe benefit for the head filer and sometimes it belongs to the mill. You might check where you work. We are happy to make the check out as directed.

Cracked Strob Analysis



The temperature control is very good. The tips are not getting too hot but they are being held too long at temperature and / or not enough of the right flux is being used.

The best indicator if temperature is the presence of “pin holes” in the braze alloy. These are caused by either trapped flux impurities or zinc boiling out of the brazer alloy. In either case there are only very few and very small holes in the braze alloy.

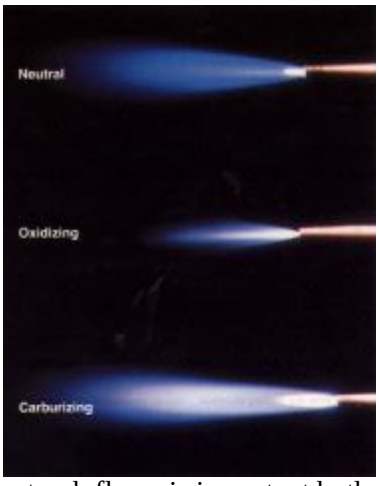
However the braze alloy has been “burnt” so that it has formed various oxides. See list at the end. Given the torch control and high operator skill I would guess that this is a flux issue and maybe a torch issue.

Lots of purified Black Flux and a reducing flame would be a big help. Check the setting of the torch and compare the flame with the picture below.

Braze alloy joins the parts and also relieves heat stress. In this case most of the braze alloy ahs been pushed out of the joint. There is a layer of feathering onto the plate that is proper and indicates a clean plate. There is also a big “bulge” of braze alloy next to the strob. Ideally you want the braze alloy to flow onto the plate but as little of it as possible.

We have prepared the four sample strobs with our high impact braze alloy (no charge). This works extremely well to solve these kinds of problems and seems with trying here.

Torch Flame Setting For Brazing



The torch flame is important both as a source of heat and as a way to protect the material. The flame needs to be a reducing (carburizing) flame, which means it, is a little oxygen starved.

An oxygen/acetylene ratio where the acetylene is higher is the best for several reasons. First, all the oxygen is consumed. Secondly, if the ratio should slip because of regulator or other pressure problems there is still a safety margin. Third, if there is a breeze in the room there is protection from excess oxygen. This problem with room oxygen can occur if the flame used is a relatively small flame and if there are air currents in the room such as might occur from heating and ventilating units or doors and windows. The suggestion has been made that the ratio of acetylene to oxygen might be as high as 6 acetylene to 1 (6:1) oxygen although this is generally considered extreme. A ratio of one to one (1:1) or one point two to one (1.2: 1) is much more common. It can be important to have a vigorous torch flame so that the flame is as much as eight inches long with an inner flame of up to three inches. Brazing at the tip of the white part of the flame is suggested.

Flux serves to keep oxygen from the braze joint. Having a reducing or carburizing flame means a flame that is somewhat oxygen starved and it will pull oxygen out of the air. Having an oxygen rich flame will put oxygen into the joint and use up the flux much faster.

More from John Schultz

Besides sending out great jokes he is also Super Thin saws.

What part of quiet didn't you understand?

Everyone needs to feel secure....

It's in there somewhere, I just know it!!

I really need to get going, but just can't seem to get motivated.....

Man...I'm getting so fat I can hardly scratch my own backside!!

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 **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**

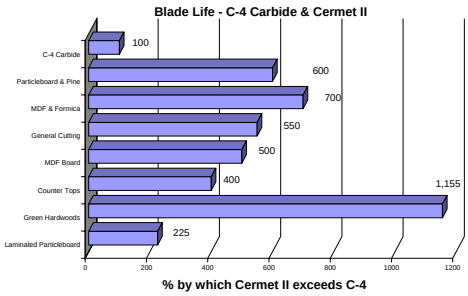
4. 406 mm (16") 80 teeth cutting MDF Board
* Cermet II - 10 days / old grade - 2 days (5 times) **500% as much run life**

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 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.

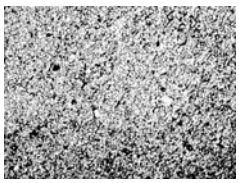
The new Cement II blade normally last twice as long before it gets damaged. The best so far is four weeks and one and a half million cuts before we changed it out which is four times longer.

Hope this helps and keep up the good work on those tips.
Nathan Hull, Grinderman
Marvin Wood Products

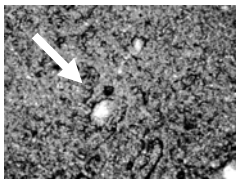
Purified Flux

30% To 100% Better Braze Joints
(50x magnification)

Purified flux
Smooth & consistent



Standard flux
Large grains of foreign material



You can see and feel the difference immediately.

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

Flux is made to prevent oxygen from getting to the parts as they are heated. Steel and especially tungsten carbide oxidize at room temperature. The hotter they get the more they oxidize. Above 1,000 F tungsten carbide oxidizes extremely rapidly and forms an unbrazeable surface. Purified flux is good for more time at higher temperatures, up to 1,700 F.

The original idea with flux was that it was to be applied on top of the braze area. However the critical part of saw and tool brazing is what goes on inside the braze joint. Ordinary flux is inexpensively made and has up to 10% odd size particles and non-active minerals in it. These odd size particles and non-active minerals get lodged in the braze area and can seriously effect the strength of the braze joint.

Purified flux is cleaner, smoother, creamier and much more effective.

5 # jars
Case (6 jars @ 5#) $ 464.31
Single jar $ 87.39

Braze Alloys (Silver Solders)

The right braze alloy can make a huge difference in performance

Braze Alloy Impact & Bond Strength Tests	
High Impact	**100%**
S50N - 50% Silver with Cadmium	100%
A50N - 50% Silver - Cadmium free	75%
A56T - 56% Silver with Tin	0%
S50N - 50% Silver with Cadmium	100%
A50N - 50% Silver - Cadmium free	64%
A50N with copper spheres added	67%

Stop tip Loss - Prevent Carbide Breakage

Saw tips are brazed onto a steel saw using braze alloy. When a tungsten carbide saw tip breaks it is usually bad carbide, the wrong grade of carbide, the wrong braze alloy or a combination of these.

The brazing process forms a three part composite. The success of the composite depends on the tungsten carbide, the steel, the braze alloy and the way it is all put together. The braze alloy has to do three things. l. It has to keep the tip on the saw. 2. It has to cushion the tip because the tip suffers a lot of impact stress when the saw cuts. 3. It has to compensate for the difference in expansion between steel and tungsten carbide as they are heated and cooled during brazing.

Buy Our Books

Buy online or call 800 346-8274

1. Carbide Saw Specification Manual
http://www.cafepress.com/sawspecs.80466877

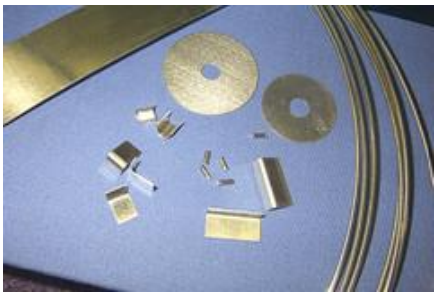
2. Carbide Saw Manual - Lowell freeborn
http://www.cafepress.com/freebornmanual.80464996

3. Managing Coolants from Machining and Grinding Operations
http://www.cafepress.com/managecoolants.80458178

4. Building Superior Brazed Tools
http://www.cafepress.com/superiortools.93943435

5. Chisels on a Wheel by Jim Effner
http://www.cafepress.com/chisels.90813670

6. Braze Failure Analysis
http://www.cafepress.com/brazefailure.79434854



We sell braze alloys (also called silver solders, high temperature silver solders, or braze filler metals.)

We supply the finest information in the world on the selection and use of braze alloys for carbide brazing.

The Finest, Most Consistent Braze Alloys For Tungsten Carbide

- 26 Different braze Alloys
- All AWS approved
- All inspected to parts per million
- All alloys exceed AWS specifications
- Cadmium free
- With Cadmium
- Hi Impact – developed for Weyerhaeuser
- Ultra Hi Strength – High Temp.
- Low Silver – Very High Strength
- Low Temp. with high strength
- Wire – all diameters
- Ribbon - all sizes
- Sandwich alloy ribbon
- Brazing preforms

Why Quality Makes A Difference
(American Welding Society AWS 5.8)
Braze alloy can be within AWS specifications but it can vary in brazing temperature by as much as twenty degrees. This means that you can have cold joints and tip one end or zinc loss and more broken tungsten carbide tips at the other end.

Our braze alloy is accurate and measured within parts per million. It is typically four times better than it has to be or more according to government certified analysis. It brazes the same way every time.

Filtering Straight Oil Coolants

We now have a filter system that filters straight oil coolants. Above is our CP 2020 which filters tight oil coolant very well. It is also available as a wall mount unit.

Here is our CP 2002, which has been an extremely good unit on water based coolants for about eight years.

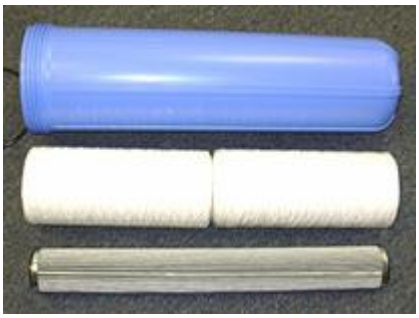
We have tried it on straight oil with very poor results. It filtered for maybe an hour before it plugged up.

Oil is much thicker than water. The filters were good enough to filter the oil for awhile but, as soon as they started to a load up with dirt, the oil was too thick to get though.

Here are the two units side by side.

A filter is a series of holes that separates particles from liquid.
Oil is thicker than water so it is harder to filter out small particles.
In addition oil transfers the pressure from the pump directly to the filter and is much more likely to collapse a filter element.

The secret is a high-tech filter. This is stainless steel inside and outside to handle the pressure. It is smaller than our water filters and has a pleated surface to provide sensational filter surface area at the high pressures oil creates.



We recommend monthly filter changes but many go much longer than that.

Great Filter Units

For Straight oil, Synthetic and Water - based coolants.

Really popular – We're selling a bunch of them

Great prices, pay for themselves readily, cleaner shops, less labor and longer diamond wheel life with better, faster grinds.

Now accepting Visa & MasterCard
Call Us at 800 346-8274 or
Equipment Ltd at 800-533-2006

Coolant filter Life

We recommend a filter change after one month in use on a single machine which is about 160 hours of use. In our tests we have seen them go 21 days of 20 hour shifts, which is 420 hours. Many folks get 2 or 3 months out of the filters which is 320 to 480machine hours.

The rating is based on the amount of sludge generated by the machine in an hour. If you run a machine 40 hours and filter one hour then you remove all the sludge from the 40 hours of running.

If you are running 11 machines then you are getting 440 hours life out of the filters in a week.

Two things can happen. 1. If filters are run too long they can load up and releases over and over so they don't do any good past a certain point. It looks like they are working, however. This is like pouring fifty gallons of water in a five gallon bucket. It works because when you are though the 50 gallon drum is empty and the bucket is full. You just ignore the water on the ground. 2. After a long enough time there will be a lot of sub-micron particles in the coolant and this can give it a gray color.

Mick from Montana Solves a Brazing Problem

Finished Product - all the beauty of Montana rock but lighter, less expensive and easier to use

We constantly solve brazing problems for an incredibly wide variety of industries. Some times we work as a consultant but we prefer to work as supplier since about half of all problems are the wrong material or bad material.

Here is the story of “Mick Montana” who is really Mick Young from Montana Rockworks. Mick is the kind of guy who will put saw blades in the back of pickup and drive 1,000 miles to get an answer. We have many stories like this but this one was written by the customer who writes as well as he does everything else.

Enjoy the story.

From: Mick Young
To: Jacqueline Erskine
Subject: Thank you!!!!!!!!!!

I want to say thank you to Carbide Processors for all the help you continually give to us.

It was one year ago that I became fed up with my diamond blade supplier and decided to research diamond segments on my own. I was delighted to find that when I took the reins I had total control over every aspect of the makeup of the diamond segment. But all of this was at the time quite worthless because I couldn't figure out how to make the little buggers stick to the blade. I tried some 56% with tin from Norco with limited success.

Frustrated, I began picking brains in our company. Erika Hines heard my complaints and started looking. She found Carbide Processors on the internet and some interesting papers created by Tom that explained a lot about brazing.

Also it opened our eyes to the right solder for the job. We ordered 49% high impact and tried again. Still, I couldn't make it happen.

Running out of blades is simply not an option here. I remember that we had approximately one week worth of blades left from my former supplier when I put a call through to Emily almost in a panic. I asked if there was any way that I could bring parts to Tacoma and see what I was doing wrong. Of course, being so help oriented she said yes.

Brazing the saws

I beat it over there and Tom attacked the problem from every aspect I could imagine and determined that we were being too conservative on solder. Also I was treated to a tour of West Coast Saws as well as a brazing demonstration.

All of this went miles towards us achieving our goal of being able to increase production and save money. That's what this is entirely about. Things that may have seemed so simple to you guys have made earth shaking differences on our side.

So, we came from buying diamond blades at a very expensive price from someone 1500 miles away, who mind you could not see the type of stone we are cutting, could not shift recipes of segments on demand, and would not dialogue with us about what changes in the segment caused what effect, to producing diamond blades at a very good price, dialing in the exact recipes for each of the seventy types of stone we cut as well as blade speeds. And we do it all right here.

We attack each problem stone with the mindset that faster is better and we have come great lengths. All of which would never have been possible without the help of Carbide Processors.

Thank you again,
Mick Young, Montana Rockworks

Stone sorted for cutting

Cutting the stone

Montana Rockworks is a ten year old company that got its start when the owner- Brad Mercord- then age 25, went to a landscaping seminar in California and repeatedly heard how beautiful the stone from Montana was but also how unreliable the suppliers were. Brad had already purchased a small quarry to supply only his own landscaping business with stone. On the way back home from the seminar, Brad drew up a business plan on a Wendy's napkin and Montana Rockworks was born. Our stone looks basically the same as any other stone supplier in Northwest Montana, but we have become the largest supplier in Montana and quite possibly the entire Northwest by simply being reliable.

Outside hammer room

So, in the freezing cold, and the blazing heat, we go to the tops of the mountains each day to harvest stone from Mother Nature. To look at the guys doing the

work- and that's what I was for the first three years here- you might think it is simply grunt labor. But in reality, a rockpicker is a professional. Ultimately it is he who is choosing how your home will look. Also, he must ensure that every stone that passes through his hands conforms to the specifications of grades which are ever changing and NEVER written down.

We have always taken pride in being able to satisfy all of our customer's requests. Some were considerably harder than others.

Now we have the ability to saw stone. This changes everything. Now we can create things other than what God intended.

We now are able to go back to places we had quarried years ago and utilize what was trash and turn it into profit. Sawing exponentially increases the amount of stone on the mountain which can be utilized. This saves us time, labor, and fuel, as well as making the quarry last longer. Also, because much of the sawn product is one inch thick, the square footage of stone which you can fit on a semi has been multiplied by a factor of four.

Anytime you can make one truck do the work of four is a benefit to us, the customer, and because of the reduced emissions involved with only one truck instead of four, we can all breathe a little easier.

Also, because thinner stone is lighter per square foot, a lot less engineering and structural re-enforcement is needed in the home which the stone is being applied to.

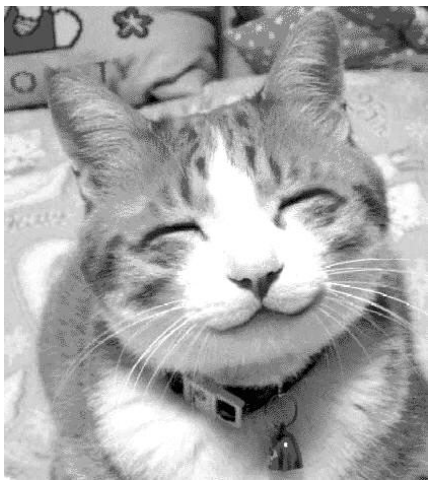
Again, this saves money, time, and again helps the environment by reducing the amount of timber and cinder blocks needed. So by not needing these materials, the factory will not need to make them, and if the factory doesn't need to make them then the coal fired power plant does not need to make the electricity used to make them. And that lump of coal stays a lump of coal for just a little longer. Pretty cool huh?

Take care,
Mick Young, Montana Rockworks

Finished product ready for shipping

Have you smiled today?????

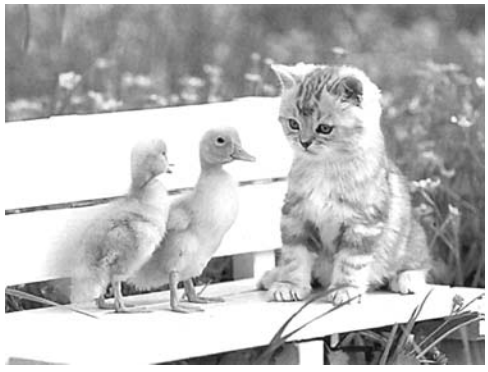
It is done by moving the corners of the mouth upward. Let me show you how.....



Now pass it on, and make someone else smile!!!

Just in case nobody has smiled at you today....

So smile at folks. Who knows, you might make new friends.



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

Not only pretty faces but also great customer service
800 346 - 8274

Here are Jackie and Emily, who are always perky and always happy to help customers. Their job is to help people find carbide, silver solder, filter systems and everything else we sell. If we can't supply you but we know who can we will refer you. No matter what you want we will work really hard to find it.

You'll really like Cermet II Tips

Call & sell scrap - 800 346-8274

Do you want $3,008.50?

We are paying $5.50 per pound for scrap carbide. We wrote a check in January for $3,008.50 to a filer for scrap carbide. He called originally and he knew he had some. He had no idea he had that much carbide or that it was worth that much money.

We are also able to buy scrap Stellite©
50 pound min. $ 6.00 per pound

This is good pretinning. It is ours and it is what you should be getting.

Need Carbide Fast?

Just call 800 346-8274
Ask about our advanced grades, please?

Brazing or Coolant Problems?

Don't just sit there like a rabbit with a pancake on its head. Give us a call.
800 346-8274