



Talonite®  
tipping rod  
– Better  
quality at a  
lower price

# Carbide Processors, Inc.

Northwest Research Institute, Inc.

Newsletter December 2004

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President's Letter

## Please Help This Poor Girl.

When we ran my picture we got more calls than when we ran Emily's picture. Since she is generally considered cuter and more charming than I am that doesn't seem right.

### Why you might want to call her

1 pound flux \$12, purified \$20.08

5 oz braze alloy \$7.00/ tr. Oz. = \$35

250 Comet® saw tips

Cobalt remover 4 oz. \$5.95

Cobalt test strips \$1.00 ea. (\$70 / 100)

Talonite® rod 10 pounds

Sure, there are quantity discounts

And More Inside

### Free Stuff

Don't get me wrong, Emily gets a lot of calls. I just got more. To help her we are giving stuff away. If you call and buy anything you can have your choice of a T shirt or coffee mug. If you just call and say hello you can have an Eisenhower "silver" dollar, the last of the big ones. If you have kids you can have one for each of them while supplies last.



## An Easy Way To Solve Many of Your Problems

On P. 5 we have a set of specification for buying carbide saw tips. You are free to copy this and use it as you wish. Many carbide suppliers say that they can't sell tight quality because they are selling a commodity product based on price so the standards have to be loose. We suggest that you let us send the same specs out to several suppliers and see what kind of answers we can get for you.

## Comet Grade Tips

Grade X for extended wear in man made materials – up to 5 times the life.

Grade M - an impact grade for nail cutting, frozen wood and similar.

Grade A – a metal alloy material - extremely good in aluminum, red oak and similar. See p.4

## Cold Process

### Pretinning (Pat. App.)

Better Quality & Lower Prices



Cold process pretinning uses a new adhesive flux between the shim and the tip. This tip and the alloy never get heated. This is faster so we can save you a couple cents on the parts.

## New Proscope Analysis

See 'Specifications' on P .5



Proscope starts at \$368

### Buy as few as 100 tips for Test

You can get a 100 pcs. of any of our premium grade tips. They braze and grind like regular carbide and can run several times as long.

## Really Beautiful Tips

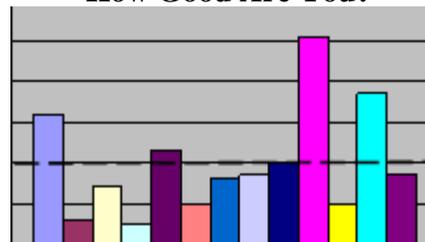
Low Temp, Cad Free Alloy



This is a low temperature, Cad free alloy on some sample tips we did for Mike Halterman of Simonds 509 990-5131. We like working with Mike because he is always willing to do something extra to help a customer plus he's just a nice guy.

We have 22 different alloys available and are always happy to sell small quantities for tests.

## How Good Are You?



## Sawmill Downtime

This USDA study gives a range of 7.9% - 21.2%

## We Sell the Very Best Heck Yes, The Prices Are Good

- The highest quality supplies for brazed tool makers and brazed tool users.
- The Best Of 40 Carbide Suppliers, 17 Silver Suppliers And Over 200 Suppliers Total.
- Surprisingly Low Prices
- We Are Very Good At Finding Hard-To-Find Items.
- Truly Superior Products All Our Own

# Cutting Frozen Lumber

Frozen lumber can cause problems if you do not make allowances for it. When the water in a log freezes into ice there are three significant changes. Ice is a lot harder to cut. Ice is also a lot harder to push out of the way than water is. Finally the ice and the wood fibers act to create separate composite material.

Example an eight-ounce weight sinks in water. It does not sink in ice. You have to drop the weight from nine inches to chip the ice and you have to drop it from 12 inches to crush the ice.

It gets worse. Logs are not all water. They are also wood fiber. When the log freezes the water sets up like concrete and the wood fiber acts like rebar.

## Three Options For Cutting Frozen Lumber

1. High Impact braze alloy
2. Comet grade saw tips
3. The right surface treatment

## Three Most Popular Choices For Brazing Carbide Saw Tips

56% Silver with Tin – Cadmium free

- This is popular because it is low temp and seems to be easiest to use.
- It works very well in gentle applications such as cutting window blind slats in clear wood
- It can also work well in applications with really big tips such as slasher tips
- Of the three alloys it has the weakest bond and least impact protection

50% Silver-cadmium free – (often referred to simply as ‘Cad Free’)

Middle for temperature range and performance

New standard since health regulations on cadmium got tightened so much

49% Silver with Manganese - Cadmium free

- It is a bit harder to use than the others because it requires more heat and has a sluggish flow

- Pretinned tips have a rough surface
- The performance is exceptionally good, especially in impact situations with smaller tips. In Weyerhaeuser tests it showed 40% better on tip loss and breakage than the standard 50% Cadmium free and about 100% better than 56% with Tin on tip loss and breakage

## Brazing High Impact Alloy

Once the parts are properly pretinned they are extremely easy to use. The brazer in the tests made the following comments:

1. It seemed to be more liquid than the standard solders.
2. It sort of felt like there was a cushion in the middle of the joint.
3. It seemed to slide in a bit differently. Generally there was just a difference in feel but no problem converting to the new alloy.

High Impact alloy melts between 1260 - 1290 F

S50N with Cadmium melts at 1170 – 1270 F

A50N melts at 1220 – 1305 F

A 56T melts at 1145 – 1205 F

A good brazer will notice the difference and adjust easily. It does take a bit of adjustment. The alloy needs some heat to get the High Impact bumps fully melted. When you drop an ice cube into boiling water it takes it a bit to melt. Brazers who helped us develop this alloy recommend a little slower heating cycle. Watch the heat. Do not let the tip get red. Put the heat into the alloy. Try to bring it up to temperature slowly and then hold it at temperature for a couple seconds. Use just enough heat to keep the temperature in the 1320 – 1340 F range without heating it any hotter.

## Winter Cutting Also nails, rocks, pallets, etc. 3 things to do

### 1. Tougher Tips

There used to be just Nicut (nickel matrix). We now sell 5 different kinds of tips for high really tough cutting. Many of these are about half the cost of Nicut and work as well or better in some applications.

We also sell Talonite®, metal alloy tips, which are extremely tough but which are about the same price as Nicut or a bit more. These do run several times as long as carbide so the price is still very fair.

### 2. Different Braze Alloys

The right braze alloy can be like the right suspension on a truck. If you take a truck off road with a light duty suspension you will bust the frame, break the suspension and damage the body. Our High Impact braze alloy is about 40% better than standard Cadmium free and about 100% better than the low temp 56% with Tin Cadmium free braze alloy.

### 3. Tip Surface Treatment

This is a little thing that can be hugely important. You can spend a fortune on tires and suspension but if the lug nuts are bad you are in trouble.

### Three Options For Frozen Wood

1. Comet tips with High Impact
2. Pretin your tips with High Impact braze alloy
3. Our standard pretinning often works better than anyone else’s due to our superior technology and equipment

### A good purchasing agent

Bernie Paulson of Simonds, Portland I was in a meeting with some folks from Simonds International and one of the topics was how to label boxes. We have a new label maker with so many options it was actually confusing things. Finally, Bernie said “We’re the customer; we’ll all do it our way”.

Once he made the decision we were able to generate labels exactly the way he wanted them. It took us a few hours to set them up but we have saved that much and more. Clear directions make it easier for us, Simonds sales, stockroom people and for the customers in the saw mill.

## What We Sell

### Filing Room Supplies that make the filer's job easier and make more money for the mill

Since 1981 we have been developing tools and technology for the filing room. The goal has always been more money for the mill and less work for the filers. Below are some of the technologies we have developed. Many of these we developed for one customer and then we never really tried to sell them anywhere else. If you would like any information on any of these items or anything similar please contact us. **800 346-8274 Sales@carbideprocessors.com**

#### **Carbide Tips**

**Comet grade reinforced carbide**

**Nicut**

**TiCN true cermets**

**Extended wear grades**

**Metal alloy saw tips**

**Cast saw tips**

**Bits and shanks**

Nail cutting grades

Metalworking saw tips

Frozen lumber

Pallet cutting

Stump grinding

Aluminum cutting

STB Tool Rectangular Strips

Strob blanks & strips

European style tips

Canadian style tips

Square back american tips

Hollow Face

Hollow top

I.T.C.O. tips

Right & left handed tips

Alternate top angles

Cutoff saw tips

Edger tips

Slasher Saw Teeth Left & Right

Slasher saw teeth rail back

Slasher saw teeth v-back

Special grinds

Bits and shanks

Trim saw tips

Band Saw Tips

Blanks

Special carbide shapes

#### **Uses & Industries**

Router bits

Saw blades

Drill bits

Special tools

Woodworking carbide

Router tips

Drill Tips

Tile scraping and nippers

Agricultural applications

Wear and cutting edges

Form tools and miscellaneous

#### **Pretinning**

**Wire, shim and paste**

**22 different alloys available**

**Regular and cold process pretinning**

As much as you want at no extra charge

Cadmium free alloys

Cadmium alloys

Hi impact pretinning with manganese

High strength high silver alloys

Trimetal shims any thickness

Patented surface treatments

Really pretty tips

#### **Filter Units**

3 month filter life

Extra clean filtering

Polishing units for use with centrifuges

#### **Coolant And Additives**

Coolant

Coolant test instruments

Coolant testing

Refractometers

Metal concentration meters

pH meters and papers

Cobalt test papers.

Coolant testing

#### **Flux**

Adhesive flux

White flux

Black flux

Purified black flux

Adhesive black flux

#### **Metal Alloys For Tipping And Knives**

**Talonite knife blanks**

#### **Special Services**

Failure analysis

Braze consulting

Contract brazing

Training

#### **Information - 3 books**

Building Superior Brazed Tools

Failure Analysis In Brazed Tools

Managing Coolants From Machining And Grinding Operations

#### **Braze Alloy / Silver Solder**

Wire

Brazing paste

Shim

Hot process

Cold process

Silver solder

All sizes, thicknesses and widths

#### **Grinding Wheels**

#### **Tipping Rod**

Round rod

Better quality, service & prices

#### **Proscope Digital Microscope**

#### **Special Carbide Services**

Pretinning

Braze treating

Custom back angles

Custom grades

Custom grinding

Custom lengths

Custom shapes

Presharp

Pre-sizing

Cryogenic treatment

High shiny surface

Slick surfaces for easy feeding

Rough surface for easy handling

Custom boxing

Custom labels

Exact counts

Really pretty tips

#### **Saw Plate**

Special cuts

Really fast delivery available

#### **We buy Carbide scrap and grinding swarf**

## Comet Grades of Tungsten Carbide

### Comet Grade "X" for Extended wear

6% cobalt – submicron grain structure. (93.5 Avg. HRA)  
Grade X is used in applications requiring very high wear resistance. Grade X is a very hard grade, ideal for manmade materials, MDF, fiberboards, etc., where there are no foreign materials. Very high wear characteristics but not suitable for impact applications.

### X grade results

Particleboard	100%+	better
Hard aggregate	20%	better
Green oak	100%	better
Sawmill	1,000%	better
Copper tube	400%	better
Fiberglass	50%	better

### Comet grade "M" for Macho

12% cobalt – 3 micron grain size (88.8 Avg. HRA)  
Grade M is extremely tough and is best used in saw tips that require toughness and resistance to fracture (applications where impact or interrupted cuts are involved). Ideal for frozen lumber and lumber with foreign materials such as nails and staples. Excellent for impact.

## Saw Tips For Christmas

On December 23 we got a rush call from a customer in Ontario. He had gotten 10,000 tips from another supplier and they were no good. He needed tips immediately. We went to work. Within an hour we had 3,200 pretinned tips on the way to him overnight. We supplied the rest of the order when he wanted it and still supply him.

### Silver Solder Sale

**\$5.00 / oz.** Selected sizes

## Four Most Common Carbide Braze Alloys

Out of the 22 alloys we sell, Standard alloy is 'Regular Cad free' or just 'Cad free'

### 1. Cadmium alloy

BAG-3, 50N or Easy-flow 3  
Solidus Liquidus Range  
1170 1270 1270-1500

### 2. Regular Cad Free

BAG-24, A50N, Ni5, 50-5  
Solidus Liquidus Range  
1220 1305 1305-1550

### 3. High Impact – Best Results

BAG-22, Silverbraze 49, Ni4, TB49  
Solidus Liquidus Range  
1260 1290 1290-1525

### 4. 56% w tin – Lo temp - Cad free

BAG-7 56%, Safety-Silv 56,  
Solidus Liquidus Range  
1145 1205 1205-1400

### 5. 40% Cad free Hi temp - lo cost

Solidus Liquidus Range  
1240 1435 1435-1650

We Can Supply

## Silver Solder, Ribbon & Flux

**Wire** – any diameter – any amount

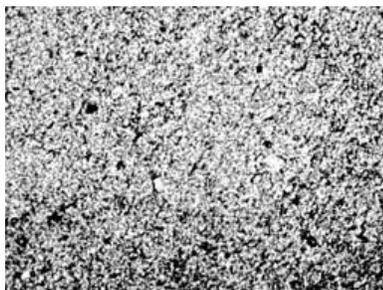
**Ribbon** - Solid alloy or Sandwich Plymetal, trimetal, etc.

Any Thickness, any width

**Flux** – Five kinds

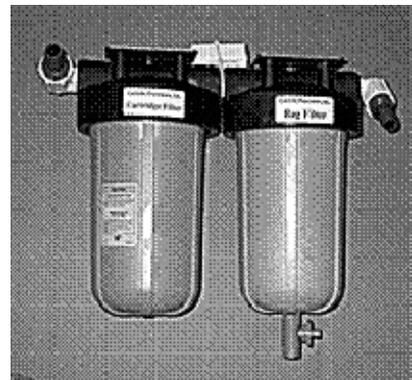
White, Black, Purified Black, Adhesive white and adhesive Black

### Purified Flux



Purified flux at 50x magnification  
Smooth, even and consistent

## Wall Mount Filter Units



The new wall mount unit with two bag housings is a simple, inexpensive filter unit that pays for itself in two to three months. This unit fits into the existing coolant system on grinders and filters coolant to a one micron cleanliness. It pays for itself in two to three months with reduced diamond wheel cost. The new wall mount system has two filter bags, a 25 coarse one to catch most of the material and a fine one for deep cleaning. This means you go months between filters and the changes are simple and easy.

### Proscope Inspection Microscope

Plugs in the USB port on a computer and creates images on your screen.



### Two New Books

**1. Building Superior Brazed Tools**  
267 pages, 271 illustrations covering more than seventy topics.

### 2. Failure Analysis In Brazed Tools

This book is a hands-on, practical approach with 97 pages and 165 illustrations, primarily color pictures.

## 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.

### Delivery

As promised.

## Carbide Saw Tip Prices

### 5,000 CWF 7180 C-2

Supplier A	0.143
Supplier B	0.156
Supplier C	0.184
Supplier D	0.175
Supplier E	0.19

These are some of the prices we got for our customers last month. When you call us we go to our suppliers and give you your choice of price, quality and delivery.

One customer was thrilled to buy high priced tips because we got them for him late Christmas Eve. Another customer liked the really low prices and was willing to schedule large orders on a regular basis. One of the more expensive companies is having real problems with both quality and delivery while one of the lower priced suppliers is doing a wonderful job on both quality and delivery.

**Call 800 346-8270**  
**for carbide**

### **Nail Cutting Grades**

CWG 7200 saw tips

Source cost    min. qty.

A	\$0.27	250 tips
B	\$0.26	1,000 tips
C	\$0.20	\$100
D	\$0.64	no minimum
E	\$0.80	100 tips

## Please Specify Us For pretinning

If you have a carbide supplier you really like and do not want us to get competitive quotes then we would still very much like to do your pretinning.

### **Pretinning .035 ea.**

We can pretin tips for as little as \$0.035 per tip plus solder costs in you send us a minimum of 10,000 of the same parts



### **Saw Filer T – Shirts**

\$14.95 plus \$3.95 S&H. If you are buying our pretinning, tips or filter systems just give us a call and find out how to get a free T shirt.

### **Filter System Rebuilds**

Convert your old system to new for as little as \$600



## Filing Room Safety

### **Cobalt Testing - Free Test Strip**

We have some cobalt test papers we use in the lab. These are very simple to use, very accurate and do not have to be refrigerated. You just dip them into a coolant and make a color match.

### **We Buy Carbide Scrap and Grinding Swarf**

The market varies but you can figure at least \$1.00 per pound. Mary says that shipping can be expensive. She's right so we'll make you a deal. If you have a fair amount and are in the Northwest Emily and I will come pick it up in exchange for a short tour.

### **Silver Solder Sale**

**\$5.00 / oz. Selected sizes**

**Richard Comer** has left Eagle International Carbide and now represents Tigra USA. We have always found Richard to be pleasant, hard working and absolutely honest. We wish him nothing but luck.  
(866) 570-3500

**Wright Machinery** has been acquired by the management group from Burton and will be run as a separate company. It is really nice to see a good company move into good hands.

### **Want More Information?**

You can have more information free on anything in here. Just call Emily at 800 346-8274