



**WALLCOLMONOY**  
SURFACING ALLOYS

# COLMONOY NEWS

AUGUST 2011

## Colmonoy® 88

### Extends Wear of Parts, Components, and Equipment in a Variety of Industries

**In the 20 years since its introduction, Colmonoy® 88 has become Wall Colmonoy's most versatile hard surfacing product.**

**Originally developed for the Glass Container Industry for use on glass forming plungers, it was quickly determined that its unique chemistry offered advantages to many markets and applications. Industries range from Petroleum, Plastics, Paper & Pulp to Food, Mining and Construction.**

Here are some of the specific products that **Colmonoy® 88** protects from wear, corrosion, and abrasion:

#### Plastics

Plastic-Extrusion Screws  
Plastic-Injection Screws  
Twin-Barrel Cladding

#### Petroleum

Triplex & Duplex Pump Plungers  
Frac-Pump Plungers  
Thermowells

#### Energy/Utilities

Power Plant Grate Bars  
Hot-Cyclone Separators  
Superheater Tubes & Panels  
Boiler Tubes

#### General Industry

Ball Valves  
Pump Casings  
Pump Sleeves

#### Chemical

Banbury® Rotors\*  
Banbury® End Plates\*

#### Construction/ Dredging/Mining

Slurry-Pipe Elbows  
Coal-Discharge Chutes  
Centrifugal Scrolls

#### Pulp & Paper

Hydropulpers

#### Marine

River Tow-Boat Sleeves

#### Wire

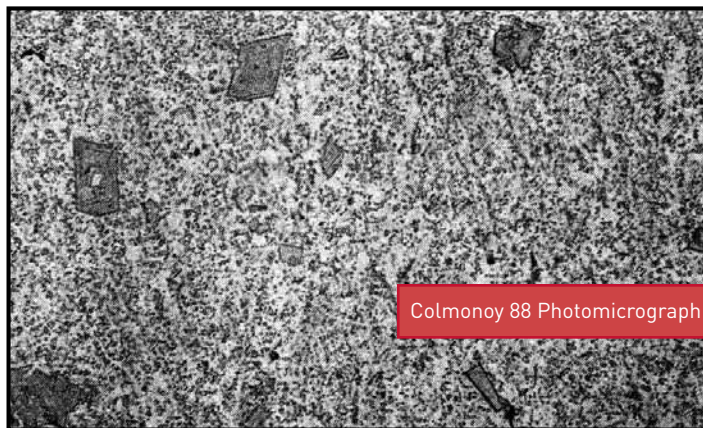
Wire-Drawing Capstans

### Premium Chemistry/Hard-Phase Formation Provides Positive Wear Resistance

**Colmonoy® 88's** premium chemistry provides product versatility and excellent wear resistance properties. In fact, its chemistry is such that bi- and tri- metallic hard phases are precipitated throughout the alloy during the manufacturing process and during fusion of the coating.

This hard-phase formation occurs due to the specific compositional relationship between the elements of tungsten, chromium, boron,

silicon, and carbon. Rapid quench gas atomization is utilized to allow nucleation of hard phases during the manufacturing process. This distribution of hard phases produces the exceptional wear characteristics of this alloy.

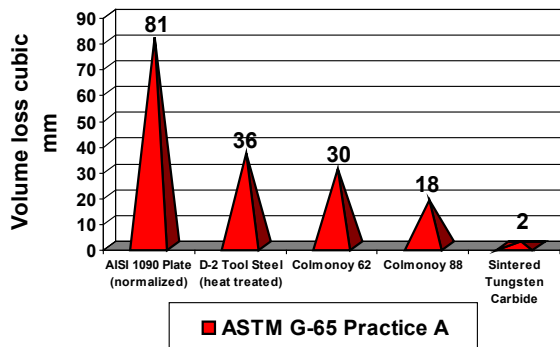


Colmonoy 88 Photomicrograph

As an integral part of Colmonoy® 88 alloy, these hard phases do not sink or settle out during the application process as would the carbides in a blended composite powder. Thus, the first 0.001" layer and the last 0.001" layer are virtually the same.

Likewise, there is no need for concern about segregation of carbide and matrix during powder shipment because Colmonoy® 88 is a pre-alloyed homogeneous powder product. The deposition of the hard-phases found in Colmonoy® 88 is as efficient as that of the matrix alloy. Therefore, there is no unexpected loss of hard phases during the coating process.

### G-65 Dry Sand Abrasion Test



The chart compares abrasive wear test results of several materials under the same conditions. The relatively low volume loss proves the superiority of Colmonoy 88 to all but the hardest of materials.



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## Easily Machined, Smoothly Ground

**Colmonoy® 88** coatings can be easily machined using BZN-6000\*\*, a polycrystalline cubic boron nitride cutting tool or similar tooling. It can also be ground to a very smooth finish (3-6 micro-inches RMS) with green silicon carbide wheels.

Due to its hardness, there is no build-up or gumming up of the wheel which occurs with softer hardfacing materials. Unlike most composite alloys, there is never any carbide pull-out or fracturing of the hard-phases.

## Available in Multiple Forms

To accommodate diverse industries and applications, **Colmonoy® 88** is available in multiple forms:

- Bare rod for Gas and GTAW Welding
- Powder for Fusewelding
- Powder for Spraywelding
- Powder for HVOF Spraying
- Powder for Plasma Transferred Arc (PTA) Welding
- Powder for Laser Cladding
- Cored wire for GMAW Welding
- Ingot for Castings
- Castings – Investment, Sand, and Centrifugal
- Transfer Tape

Several customers have also arc sprayed **Colmonoy® 88**, 1/16" wire with excellent results. These applications range from forklift tines to water walls in boilers.

**Colmonoy® 88's** typical properties include:

Hardness (Rockwell C)	61	Melting Range:
Density	9.9gm/cc	Solidus 1810°F
Apparent Density	4.8gm/cc	Liquidus 2160°F

**A premium surfacing alloy used for applications across a broad spectrum of industries, Colmonoy® 88 is the product of choice for leading companies.**

\* Registered trademark of Farrel Corporation

\*\* Registered trademark of Diamond Innovations, Inc., USA

## About Wall Colmonoy

Wall Colmonoy is the leading manufacturer of alloy products for surfacing, high-temperature brazing and casting applications across a range of high-tech industries.

Known for our unique proven way of creating superior performing alloys that enhance engineered components, we pride ourselves on long-term strategic customer collaboration that produces value-added ideas and creative solutions.

Combining more than 70 years of engineering technology with a progressive, visionary outlook, Wall Colmonoy offers customers trusted, customized expertise that results in smart innovation and shared growth.

**Progressive Collaboration for Superior Performance Worldwide.**

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