

Better for the environment - Better for your productivity

# GreenBraz

New Formulations



*Stronger, with  
Castolin Eutectic*



**Boric Acid  
Borax  
Cadmium**



**A newly developed range of brazing products.  
Entirely reformulated by our scientists to eliminate  
Boric Acid, Borax and Cadmium.**

Fully complies with REACH\*  
\* New European regulation

**Castolin Eutectic®  
Eutectic Castolin**

## ***Our Brazing tradition***

Over 100 years ago in 1906, Mr. Wasserman started his business with the development, production and sales of brazing fluxes. In the following years, Castolin was formed and began to develop new low temperature and eutectic brazing alloys. Castolin was not only revolutionary in terms of its developments, in patents and in manufacturing processes, but also in training salesmen and customers on the brazing and soldering methods. Castolin Eutectic has always been years ahead of the competition. For example, Castolin

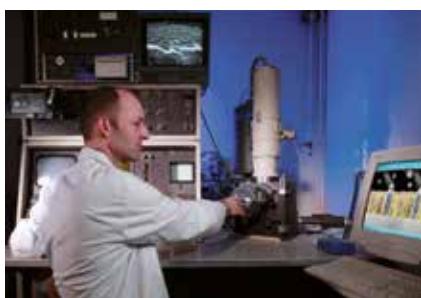
developed the first non-corrosive aluminium fluxes in the 60's, the first aluminium pastes in the 70's and the first nickel pastes in the late 70's. These products were 15 to 20 years before their time. Castolin Eutectic has patented over 200 products in its history and is still developing and improving products and processes for its customers today.

Castolin Eutectic, with its 100 years tradition of developing and innovating soldering and brazing solutions, is the right partner for you.



*Above: some of the first documented flux packages from Castolin Eutectic in 1910*

## ***R&D***



Castolin Eutectic employs many engineers, chemists, scientists and technicians solely focused on solving the technical problems of our customers. The main research and development laboratory for brazing product within Castolin Eutectic is close to Paris, France. This laboratory is one of the most advanced brazing technology research laboratories in Europe. This facility is equipped for in-depth studies of all types of brazing and soldering applications and problems or challenges. Castolin Eutectic not only has scanning electron microscopes, the latest chemical analysis, laser

granulo-meter, thermal analytical equipment and many other specialised equipment, but also has a well trained technical team. Our team has examined over 3'500 metallurgical samples in the last 15 years, identifying the root causes of problems as well as recommending the required solutions.

As a Castolin Eutectic customer, you will receive the absolute best care and service to ensure the quality and efficiency of your production. Castolin Eutectic brazing R&D Center in France is also ISO certified.

## ***Manufacturing***



Castolin has been producing soldering and brazing products for over 100 years. Today, we have some of the most modern production equipment available. Although many companies have outsourced their production or are simply reselling soldering and brazing products, Castolin Eutectic is dedicated to keeping the produc-

tion in-house. Therefore, Castolin Eutectic is able to offer excellent service and technical support to its customers. By developing and producing our own products, we are able to control the quality of every step in the production process. Castolin Eutectic uses only high quality raw materials. Every batch is strictly controlled and tested.

## ***Boric Acid & Borax free***

Keen to follow the current and future REACH legislation and to find answers to environmental constraints applied to our sector, Castolin Eutectic developed a Brazing product range containing no boric acid or borax.

The new line is called GreenBraz and is composed of powder fluxes, paste fluxes and brazing rods.



### **What is REACH?**

REACH is a new European Community Regulation on chemicals and their safe use.



It deals with the Registration, Evaluation, Authorisation and Restriction of Chemical substances. The aim of REACH is to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances. At the same time, innovative capability and competitiveness of the EU chemicals industry should be enhanced.

## ***Cadmium free***

Cadmium is considered eco-toxic and so this is the first reason why Castolin Eutectic developed cadmium-free products. Cadmium is used in batteries, plastics, pigments and metal coatings. Cadmium can enter into the environment through landfills, poor waste disposal methods, when burning coal for energy, etc. The particles can travel far before falling to the ground or water and each year many tons of cadmium are discharged into our seas and oceans.

Environmental pressures to eliminate the use of cadmium in industrial goods have been growing and the European Union created several directives to prevent the

use of such hazardous substances. Furthermore, cadmium has already been banned from Aerospace, Automotive, Medical and Potable Water applications.



### **RoHS**



The Directive on the Restriction of the use of certain Hazardous substances in electrical and electronic equipment was adopted in February 2003 by the European Union. This directive restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment. It is closely linked with the Waste Electrical and Electronic Equipment Directive which sets collection, recycling and recovery targets for electrical goods and is part of a legislative initiative to solve the problem of huge amounts of toxic waste. Castolin Eutectic products are certified to comply with this directive.

## Brass

| Type      | Product Name | Form       | Diameter | Packaging | Length | Melting Range | ESC Code | ISO 3677             |
|-----------|--------------|------------|----------|-----------|--------|---------------|----------|----------------------|
| Green Rod | 18           | bare rod   | 2.0 mm   | 2.5 kg    | 500 mm | 870 - 895°    | 200168   | B-Cu60Zn(Ag)-870/895 |
|           |              |            | 3.0 mm   | 5 kg      | 500 mm |               | 200169   |                      |
|           | 18 NXF       | coated rod | 2.0 mm   | 2.5 kg    | 500 mm | 870 - 895°    | 755592   | B-Cu60Zn(Ag)-870/895 |
|           |              |            | 3.0 mm   | 2.5 kg    | 500 mm |               | 755593   |                      |

### Typical Applications include

**Green Rod 18 and 18 NXF** Bare or coated (flexible) alloy for high quality joining of copper and steel. Repair and joining of piping.

| Type       | Product Name | Form  | Packaging | Activity Temp. Range | ESC Code | NF EN 1045 |
|------------|--------------|-------|-----------|----------------------|----------|------------|
| Green Flux | 146 M        | paste | 1 kg      | 800 - 1000°          | 756018   | FH21       |
|            | 18 NXF       | paste | 250 gr    | 700 - 1000°          | 755453   | FH21       |
|            |              |       | 500 gr    |                      | 753889   |            |
|            |              |       | 1 kg      |                      | 755454   |            |

### Typical Applications include

**Green Flux 146 M** Especially for applications on steels, iron and copper.

**Green Flux 18 M** Ferrous and copper.





## CuproAluminium Brazing

| Type      | Product Name | Form     | Diameter | Packaging | Length | Melting Range | ESC Code | ISO/FDIS 17672 |
|-----------|--------------|----------|----------|-----------|--------|---------------|----------|----------------|
| Green Rod | 1666         | bare rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 700°    | 201371   | Ag 145         |
|           |              |          | 2.0 mm   | 1 kg      | 500 mm |               | 201372   |                |

### Typical Applications include

**Green Rod 1666** Bare rod for capillary joining on copper, ferrous metals, on well fitted pieces. Food industry.

| Type       | Product Name | Form  | Packaging | Activity Temp. Range | ESC Code | NF EN 1045 |
|------------|--------------|-------|-----------|----------------------|----------|------------|
| Green Flux | Albro        | paste | 1 kg      | 400 - 820°           | 755457   | FH11       |

### Typical Applications include

**Green Flux Albro** Copper-aluminium, alloys containing aluminium.

## Brazing Carbides

| Type      | Product Name | Form     | Diameter | Packaging | Length | Melting Range | ESC Code | ISO/FDIS 17672 |
|-----------|--------------|----------|----------|-----------|--------|---------------|----------|----------------|
| Green Rod | 1703*        | bare rod | 1.5 mm   | 1 kg      | 500 mm | 680 - 705°    | 205421   | Ag 449         |
|           |              |          | 2.0 mm   | 1 kg      | 500 mm |               | 205422   |                |

\* contains nickel

### Typical Applications include

**Green Rod 1703** Bare rod for the joining of ferrous metals with carbides.

| Type       | Product Name | Form  | Packaging | Activity Temp. Range | ESC Code | NF EN 1045 |
|------------|--------------|-------|-----------|----------------------|----------|------------|
| Green Flux | 1703 PF      | paste | 1 kg      | 400 - 900°           | 755455   | FH12       |
|            | 38917 FPD    | paste | 1 kg      | 400 - 900°           | 756019   | FH12       |

### Typical Applications include

**Green Flux 1703 PF** 1703 PF is especially made for application on steels and tungsten carbides.

**Green Flux 38917 FPD** Dispensable flux.

## Silver Cadfree

| Type      | Product Name | Form     | Diameter | Packaging | Length | Melting Range | ESC Code | ISO/FDIS 17672 |
|-----------|--------------|----------|----------|-----------|--------|---------------|----------|----------------|
| Green Rod | 1800         | bare rod | 1.5 mm   | 1 kg      | 500 mm | 625 - 665°    | 205365   | Ag 156         |
|           |              |          | 2.0 mm   | 1 kg      | 500 mm |               | 205366   |                |
|           | 1666         | bare rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 700°    | 201371   | Ag 145         |
|           |              |          | 2.0 mm   | 1 kg      | 500 mm |               | 201372   |                |
|           | 1665         | bare rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 720°    | 201341   | Ag 140         |
|           |              |          | 2.0 mm   | 1 kg      | 500 mm |               | 201342   |                |
|           | 1655         | bare rod | 1.5 mm   | 1 kg      | 500 mm | 655 - 755°    | 201309   | Ag 134         |
|           |              |          | 2.0 mm   | 1 kg      | 500 mm |               | 201310   |                |

### Typical Applications include

- Green Rod 1800** Bare rod for capillary joining of well fitted parts: copper, ferrous metal, especially stainless steel with mechanical stress.
- Green Rod 1666** Bare rod for capillary joining on copper, ferrous metals, on well fitted pieces. Food industry.
- Green Rod 1665** Bare rod for capillary joining on ferrous and non-ferrous metals. Especially for joining of medical fluids and refrigerants.
- Green Rod 1655** Bare rod for the joining of series, especially for big quantities in air-conditioning and refrigeration.



| Type      | Product Name | Form       | Diameter | Packaging | Length | Melting Range | ESC Code | ISO/FDIS 17672 |
|-----------|--------------|------------|----------|-----------|--------|---------------|----------|----------------|
| Green Rod | 1020 XFC     | coated rod | 1.5 mm   | 1 kg      | 500 mm | 625 - 665°    | 755594   | Ag 156         |
|           |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755595   |                |
|           | 1666 XFC     | coated rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 700°    | 755597   | Ag 145         |
|           |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755598   |                |
|           | 1665 XFC     | coated rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 720°    | 755600   | Ag 140         |
|           |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755601   |                |
|           | 1655 XFC     | coated rod | 1.5 mm   | 1 kg      | 500 mm | 655 - 755°    | 755602   | Ag 134         |
|           |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755603   |                |

### Typical Applications include

- Green Rod 1020 XFC** Coated rod (flexible) for capillary joining on stainless steel, ferrous metal, copper and having a nice appearing after brazing.
- Green Rod 1666 XFC** Coated rod (flexible) for capillary joining on copper, ferrous metals, on well fitted pieces. Food industry.
- Green Rod 1665 XFC** Coated rod (flexible) for capillary joining on ferrous and non-ferrous metals. Especially for joining of medical fluids and refrigerants.
- Green Rod 1655 XFC** Coated rod (flexible) for the joining of series, especially for big quantities in air-conditioning and refrigeration.

| Type       | Product Name    | Form   | Packaging | Activity Temp. Range | ESC Code | NF EN 1045 |
|------------|-----------------|--------|-----------|----------------------|----------|------------|
| Green Flux | 181 Atmosin     | powder | 250 g     | 550 - 900°           | 755405   | FH20       |
|            |                 |        | 750 g     |                      | 755406   |            |
|            | 1802 Atmosin    | powder | 250 g     | 400 - 800°           | 755429   | FH10       |
|            |                 |        | 750 g     |                      | 755430   |            |
|            | 181 PF Atmosin  | paste  | 250 g     | 550 - 900°           | 755431   | FH20       |
|            |                 |        | 1 kg      |                      | 755432   |            |
|            | 1802 PF Atmosin | paste  | 250 g     | 420 - 820°           | 755433   | FH10       |
|            |                 |        | 1 kg      |                      | 755434   |            |
|            | ActivaTec 1000  | paste  | 250 g     | 400 - 800°           | 204218   | FH10       |
|            |                 |        | 1 kg      |                      | 201152   |            |

### Typical Applications include

- Green Flux 1810Atmosin and 180 PF Atmosin:** Massive parts requiring a long heating.
- Green Flux 1802 Atmosin and 1802 Atmosin PF:** Universal applications.
- Green Flux ActivaTec 1000:** Steels, stainless steels, copper.

## ECO Greenline

| Type         | Product Name | Form       | Diameter | Packaging | Length | Melting Range | ESC Code | ISO/FDIS 17672 |
|--------------|--------------|------------|----------|-----------|--------|---------------|----------|----------------|
| ECO GreenRod | 38256 NXF    | coated rod | 1.5 mm   | 1 kg      | 500 mm | 625 - 665°    | 755610   | Ag 156         |
|              |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755611   |                |
|              | 38245 NXF    | coated rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 700°    | 755612   | Ag 145         |
|              |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755613   |                |
|              | 38240 NXF    | coated rod | 1.5 mm   | 1 kg      | 500 mm | 660 - 720°    | 755614   | Ag 140         |
|              |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755615   |                |
|              | 38234 NXF    | coated rod | 1.5 mm   | 1 kg      | 500 mm | 655 - 755°    | 755616   | Ag 134         |
|              |              |            | 2.0 mm   | 1 kg      | 500 mm |               | 755617   |                |

| Type          | Product Name | Form  | Packaging | Activity Temp. Range | ESC Code | NF EN 1045 |
|---------------|--------------|-------|-----------|----------------------|----------|------------|
| ECO GreenFlux | FP 38978     | paste | 1 kg      | 800 - 1000°          | 755463   | FH21       |
|               | FP 38976     | paste | 1 kg      | 400 - 800°           | 755467   | FH10       |
|               | FP 38917D    | paste | 1 kg      | 400 - 900°           | 755469   | FH12       |





## Training



At Castolin Eutectic, we offer a wide range of brazing, welding, and thermal spray training courses. These courses can be designed according to the needs of each customer. There are training sessions for managers, engineers and technicians.

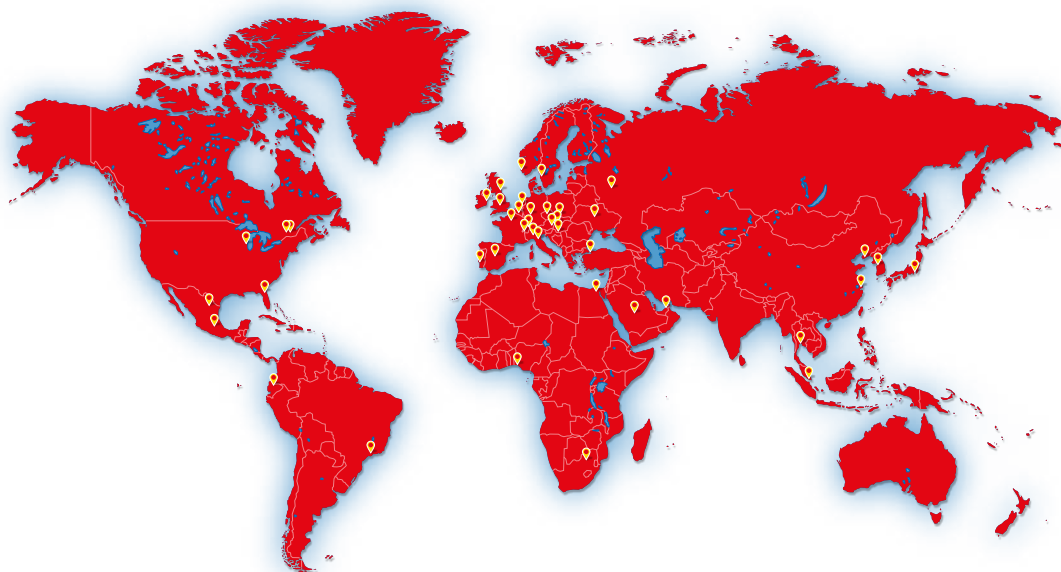
The training courses about brazing and soldering teach the basics about joint design, pre-cleaning, flux selection, alloy selection, process parameters, flux removal, etc.

Each course is composed of theoretical as well as practical training. Castolin Eutectic can offer these courses in almost every European country. The courses are carried out in our own in-house training facilities, with qualified instructors or with our trainers at your location.



For more information about training, please contact your local Castolin Eutectic company. Contact information can be found in our website: [www.castolin.com](http://www.castolin.com).

## Castolin Eutectic



Together with our sister companies in the Messer World, we can offer our customers a very powerful range of products and services. Being Part of the Messer World means:

- Investment of over € 420 million
- More than 6,000 motivated employees
- Over 100 factories to meet customer needs
- Technical sales support in over 120 countries
- 2,000 technical sales people in the field with our customers every day



Messer is one of the leading industrial gas companies, and is active in over 30 countries in Europe and Asia, as well as Peru, with over 60 operating companies.

From acetylene to xenon, the Messer Group has one of the most diverse product portfolios on the market – it produces industrial gases such as oxygen, nitrogen, argon, carbon dioxide, hydrogen, helium, shielding gases for welding and brazing, specialty gases, medical gases and many different gas mixtures.



Quality laboratory



Product Portfolio - Widest in the Industry





## *Greener, with Castolin Eutectic*



### **Your resource for protection, repair and joining solutions**

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