

Tools used in dangerous areas must be designed and produced to ensure safety during use in places where there is a risk of explosion because the sparks.

In many industrial processes where inflammable materials are handled, every exposure, leak or spill can create an atmosphere potentially explosive.

Characteristics of the Tramontina PRO safety tools:

- Spark proof
- Rust resistant
- Non-magnetic

Application:

- **Spark proof:** petrochemicals, munitions and weapon industries, alcohol mills and mining, etc.
- **Non-magnetic:** radar stations, aerospace industries and magnetic resonance rooms, etc.
- **Rust resistant:** shipyards, laboratories and desalination plants, etc.

The copper-beryllium alloy, used in Tramontina PRO Safety Tools, has a superior mechanical resistance compared to other non-sparking materials available in the market.

Comparison of different spark proof material:

Below is set out a comparative of the resistances between the copper-beryllium tools and other options in spark proof materials, in which you will see that this alloy guarantees a superior resistance.

CHARACTERISTICS	MATERIALS			
	Cu-Be Tramontina PRO	Cu-Al	Cu-Zn	Cobre
Chemical Composition (%)	Cu = 96,5 Be = 1,5 a 1,8 Fer = max. 1,0 Others	Cu = 76 Al = 10 - 12 (Fe + Mn) = max 5,8 Ni = 4 - 6 Others	Cu = 70 Zn = 30	Cu = 99,9 Residues
Tensile strength	1.200 N/mm <sup>2</sup>	900 N/mm <sup>2</sup>	600 N/mm <sup>2</sup>	400 N/mm <sup>2</sup>
Hardness after heat treatment	35-40 HRC	25-30 HRC	8-10 HRC	4-8 HRC

**Special tools:** Tramontina PRO can offer special sizes and items, apart from the ones that are mentioned in this catalogue. To obtain more information, access [tramontina.com/pro](http://tramontina.com/pro) and send us your requirements.

Beryllium Copper Alloy (CuBe) with the following chemical composition:

Be: 1,5 - 1,8%  
(Co+Ni): min. 0,2%  
(Co+Ni+Fe): max. 1,2%  
(Cu+Be+Co+Ni+Fe): min. 99%

## 2) Characteristics :

There are three characteristics extremely important for the safety of the professional and they can be found on the CuBe tools:

- Spark proof
- Non magnetic
- Rust resistant

## 3) Application according to the tools' characteristics:

### a) Spark proof

- Distilleries and breweries
- Munitions and weapon industries
- Painting and varnishing booths
- Gas and oil well drilling plants
- Flour and sugar mills
- Fertilizer industries
- Manufactures of inflammable products
- Glass industries
- Painting and varnishing manufactures
- Gas plants and products derived from coke
- Oil refinery
- Construction and maintenance of pipelines.

### b) Non magnetic

- Transmission radar center
- Maintenance of magnetic precision equipment
- Magnetic resonance rooms
- Aircraft maintenance
- Clean rooms of electronic product manufacturers
- Testing machines

### c) Rust resistant

- Laboratory
- Boat maintenance
- Desalination plants
- Plastic industries
- Shipyards

## 4) Dangerous Areas:

With an atmosphere that is composed by a mix of air with flammable substances in gas condition, vapors, mist or dust in which, after the ignition starts, the combustion spreads for all the mixture.

The Beryllium Copper tools are incompatible to the acetylene gas.



Classification of dangerous areas:

	EXPLOSION PROBABILITY		
	HIGH	MEDIUM AND LOW	VERY LOW
Definition	Frequent or permanent explosive atmosphere	Occasional explosive atmosphere	Improbable explosive atmosphere
Kinds of protection	2 kinds of protection independent	Suitable for frequent or significant disturbs	Suitable for the normal use
Gases and vapors	ZONE 0	ZONE 1	ZONE 2
Dusts	ZONE 20	ZONE 21	ZONE 22

**IMPORTANT:**

A zone can be dislocated because of the heating of the products, kind of ventilation, weather variation and errors in the manipulation.

**5)Warranty:**

The Tramontina PRO Safety Tools, produced in Beryllium Copper, have a total warranty against manufacture defects. If any tool is faulty, it will be repaired or substituted, unless the faulty is a result of incorrect use/abuse or normal wear. The safety tools, due to their material, do not have the same hardness as the conventional Chrome Vanadium tools. Because of this, the users must take special care during their use. Use of safety tools is not the only preventative action to be considered in dangerous environments. Clothes and special materials, indicated according to the application, have also to be considered by the user.

**6) Delivery terms:**

Delivery under consult.  
In case of orders with the a total value higher than US\$ 2.500,00, the customer must pay 50% of the value before the order's production.

Safety tools are produced and tested according to plant specifications.