

# MELEE NOMENCLATURE

Corundum & Beryl

Bellerophon Gemlab Group

The Bellerophon Gemlab Group strives to implement the most demanding quality standards and follows a continuous improvement approach to satisfy our clients as best as possible. Over the years, we have developed partnerships that have allowed us to strengthen our quality and to address our industry's major issues together. We are now formalizing our Melee nomenclature to ensure our ethical commitment to working with our customers sustainably over the long term. This policy is in line with our core values and principles.

We encourage our clients and their suppliers to go further by applying good or even best practices. We firmly believe that this is the best means for us to work together to establish the conditions for sustainable and environmentally friendly growth.



M.P.H, Curti. Founder and Chief Executive Officer

# The Corundum (Ruby & Sapphire) Testing

## What do we Test in our Melee Testing?

In all Corundum, we test individually every single piece send to Bellerophon Gemlab. Our first test is the **Identification** of the submitted gemstone: is the specie of the gem a Corundum and is the variety either a Ruby or a Sapphire.

We always follow this testing by analyzing the **Genesis** of the said Corundum: Is the Ruby and Sapphire either Natural, Synthetic, Synthetic overgrowth on Natural or a Doublet/Triplet.

Assuming the gemstone is a Corundum of Natural Genesis we will further test your precious Melee for some **Treatment(s)**: The treatment detection includes mandatorily the analysis for the presence of **Lead Glass filling**, or **Resin**, a **significant amount of residues** in fissures and/or **agglomeration** of corundum by high temperature for all, **Cobalt Diffusion** and **Titanium Diffusion** for Blue Sapphire, **Chromium Diffusion** for Ruby and any kind of **Dyed** involving or not a quiche crackling process.

The optional extra treatment(s) detection is the **color stability**, the **indications or not of heating** (for high temperature treatment only\*), and the **Beryllium diffusion** (Minimum size of 3mm is required for beryllium testing).

## How do we Test your Melee?

Bellerophon Gemlab check the **identification** of a Melee by one or a combination of these equipment depending on gemstone transparency, color, and other gemological properties: **Raman Spectroscopy**, **Photoluminescence** and/or **Fourier Transform Infrared Spectroscopy**.

The **Genesis** of a Corundum is authenticate using **Energy Dispersive X-Rays Fluorescence**, based on the Vanadium, Chromium, Iron, and Gallium ratio combined with a visual **microscopic inspection**.

The mandatorily treatment detection are analyzed using a combination of **Energy Dispersive X-Rays Fluorescence**, **Raman Spectroscopy** and/or **Fourier Transform Infrared Spectroscopy**.

The optional extra testing uses respectively a **color stability test**, a visual **microscopic inspection** and/or **Ultraviolet Visible Near Infrared spectroscopy** and/or **Fourier Transform Infrared Spectroscopy** for the **identification or not of heat treatment** (for high temperature treatment only\*), and a **Laser Induced Breakdown Spectroscopy** for **Beryllium Testing**.

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*\*High temperature treatment is defined as any temperature that disintegrated internal features if present in the host and/or infrared absorption peak related to thermal treatment present at the time of examination using the Melee testing standard protocol for the equipment. Therefore, it is possible that some heat treatment, low or high temperature **may not be detectable** using the Melee testing standard protocol.*

# The Beryl (Emerald and others) Testing

## What do we Test in our Melee Testing?

In all Beryl, we test individually every single piece send to Bellerophon Gemlab. Our first test is the **Identification** of the submitted gemstone: is the specie of the gem a Beryl and is the variety either an Emerald, or another Beryl specie.

We always follow this testing by analyzing the **Genesis** of the said Beryl: Is the Emerald either Natural, Synthetic, Synthetic overgrowth on Natural or a Doublet/Triplet.

Assuming the gemstone is an Emerald of Natural Genesis we will further test your precious Melee for some **Treatment(s)**: The treatment detection includes mandatorily the analysis for the presence of **Filler** and may include the identification of said filler\*\* such as **Oil** or **Resin**, and any kind of **Dyed**.

The optional extra treatment(s) detection is the **quantification of the amount of filler** in the emerald.

## How do we Test your Melee?

Bellerophon Gemlab check the **identification** of a Melee by one or a combination of these equipment depending on gemstone transparency, color, and other gemological properties: **Raman Spectroscopy**, **Photoluminescence** and/or **Fourier Transform Infrared Spectroscopy**.

The **Genesis** of a Beryl is authenticate using **Fourier Transform Infrared spectroscopy** and/or **Energy Dispersive X-Rays Fluorescence**, combined with a visual **microscopic inspection**.

The mandatorily treatment detection are analyzed using a combination of **Raman Spectroscopy** and/or **Fourier Transform Infrared Spectroscopy**\*\*.

The optional extra testing uses a visual **microscopic inspection** and/or **Fourier Transform Infrared Spectroscopy**.

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*\*\*Filler identification is made using either a DRIFT single testing or a single axe beam condenser FTIR only. Therefore, it is possible that very small proportion of oil or resin **may not be detectable** using the Melee testing standard protocol.*

# Nomenclature Melee Testing

## Ruby and Sapphire.

### Identification:

- Natural (Ruby or Sapphire)
- Synthetic (Ruby or Sapphire)
- Doublet or Triplet
- Synthetic overgrowth on Natural

### Comment(s): *may include a combination and are not limited to the one below*

- No indications of heating
- Indications of heating
- Mixt: No heat & heated.
- Lead Glass filling
- (Titanium or Cobalt or Chromium) Diffused
- TE4 (Significant amount of residues)
- Agglomeration
- Dyed

# Nomenclature Melee Testing

## Emerald.

### Identification:

- Natural Emerald
- Synthetic Emerald
- Doublet or Triplet
- Synthetic overgrowth on Natural

### Comment(s): *may include a combination and are not limited to the one below*

- No indications of clarity modification
- Oil
- Resin
- Mixt: No Oil & Oil.
- Dyed