

## **The Aesthetics of the Combining Between the Thermal Enamel and The Semi-Precious Stones and Their Role in Enriching the Surface of Metal Crafts**

**Prof. Germin Fawzy Samaan**

Professor of Metal Works, Department of Artistic Works and Folklore – Faculty of Art Education – Helwan University

[Germinfawzy80@yahoo.com](mailto:Germinfawzy80@yahoo.com)

**Assist. Prof. Dr. Hend Khalaf Morsy Mohammed**

Assistant Professor of Metal Works, Department of Artistic Works and Folklore – Faculty of Art Education – Helwan University

[Henakhalaf81@gmail.com](mailto:Henakhalaf81@gmail.com)

**Researcher. Aya Mohamed Magdy Hassan Anwar**

Master student in metal works department - Department of Artistic Works and Folklore- Metal works - Faculty of Art Education – Helwan University

[youimedany@gmail.com](mailto:youimedany@gmail.com)

### **Abstract:**

Applying enamel on the surface of the metal artwork is one of the techniques of a great importance, regarding metal formulation, due to its colors and textures provided enriching the surface. Moreover, the color is an important aesthetic factor affecting the artwork; it enriches the plastic and expressive value of metal artworks, in case of matching the color of the background. Consequently, it aids the artist to achieve the desired aesthetic value, as Enamel is the process of emerging layers of glass on the surface of the metal.

The semiprecious stones have been included in the ancient Egyptian jewels, which increases its glamour. The ancient Egyptians had been aware of colorful stones and including them in their jewels resulting in producing pieces of artworks astonishing the whole world of its beauty, since the time pre-families.

The semiprecious stones are the stones that might belong to a metal non-metallic or organic origin, which can be either zoological or botanical, and all have various features.

Man has reached various treatments for precious and semiprecious stones, in order to improve their qualities, of which, there is treatment with heat.

Treatment with heat may affect the surface of the metal artwork, as it is possible to combine enamel and semiprecious stones. The process results in color and texture on the surface of the metal enriching the plastic value of the artwork. This combination can treat the cracks of the semiprecious stones, along with the formulation troubles. It is considered one of the means of permanent combination of metals, as well as, it either assures or changes the color in some stones, while in others, it results in diaphaneity.

Combining between enamel and semiprecious stones of metal surface can result in enriching the artwork, through the variety of plastic and expressive values. The variety is produced by the heat in combining the two elements in different formulations, upon which the issue of the research is; how to enrich metal artworks expressing the aesthetics of combining between enamel and semiprecious stones?

**Opening Keywords:** Semiprecious Stones - Enamel

**Issue of Research:**

According to what has been previously mentioned, combining between enamel and semiprecious stones on metal surface, by heat, have the ability to produce rich artworks through the resulted variety in plastic and expressive factors of the different formulations, upon which, the research specifies the issue of the research in the later question:

- How to enrich metal artworks expressing the aesthetics of combining between enamel and semiprecious stones?

**Imposition of Research:**

The student imposes that combining between enamel and semiprecious stones has an effect in enriching the surface of the metal artworks.

**Aims of Research:**

- 1- Discovering new coloring treatments combining enamel and semiprecious stones by heat.
- 2- Achieving new plastic dimensions to enrich the surface of the metal artworks.

**Importance of Research:**

- 1- The research contributes in the field of experimenting in metal artworks through specifying the plastic values of combining between enamel and semiprecious stones with heat.
- 2- It highlights the plastic values of combining between various materials, in addition to the importance of benefitting from it in favor of the metal artwork's surface.

**Boundaries of Research**

Specify the following:

- Using heat treatments benefitting from the manual techniques in the plastic metal field.
- Using red copper metal and yellow copper bar.
- Using heated enamel in different colors and types.
- Using semiprecious stones.
- Applications carried by the student.

According to what has been previously mentioned, the student believes that combining between enamel and semiprecious stones by heat treatment affect the metal surface, which, in return, glorifies the plastic values of metal artworks.

**Approaches of Research:**

The research follows the historic and descriptive analytic experimental approaches, and so the student can ensure what has been imposed through two frameworks.

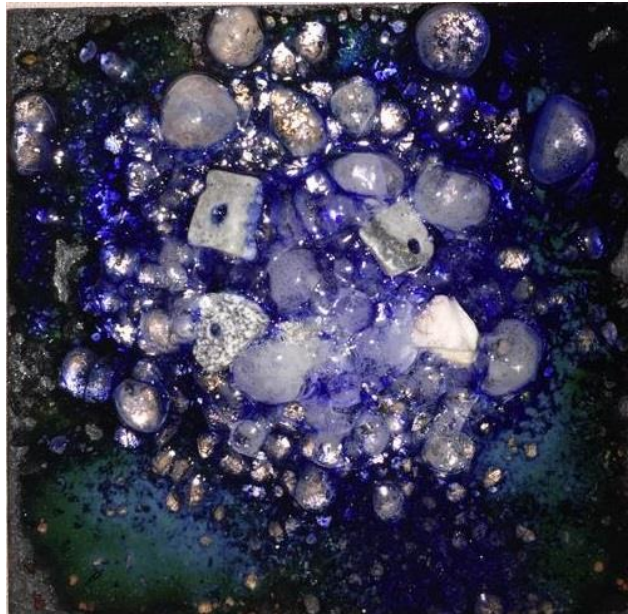
First: The Theoretical Framework:

- Studying the enamel's features and usages through the modern and ancient prospective.
- Studying the features and types of the semiprecious stones, regarding the shape, chemical formulation and heat treatments, along with physics' features .
- Descriptive analytical study of some chosen artworks of artists, who focus on combining between enamel and semiprecious stones in both the ancient and modern time.

Second: Applicable Framework:

Based on conclusion of the discovered and applied practice and analyzed artist's works, the study tackles:

- Applicable and discoverable practices of some semiprecious stones treated with heat, regarding some changes (the type and size of stone – the temperature – the state of the stone in the furnace before\with\after applying the enamel).
- Experimental studies through the color of the enamel \ the state of transparency, along with the previously imposed benefit of metal treatment with heat in combining between the enamel and semiprecious stones of metal artworks.
- Applications of the student, in order to produce metal artworks by combining between enamel and semiprecious stones.
- Analyzing the conclusion of the research in the form of results and recommendations.



**Self-study experience**

**The color effects resulting from the combination of blue enamel, quartz and hard stone**



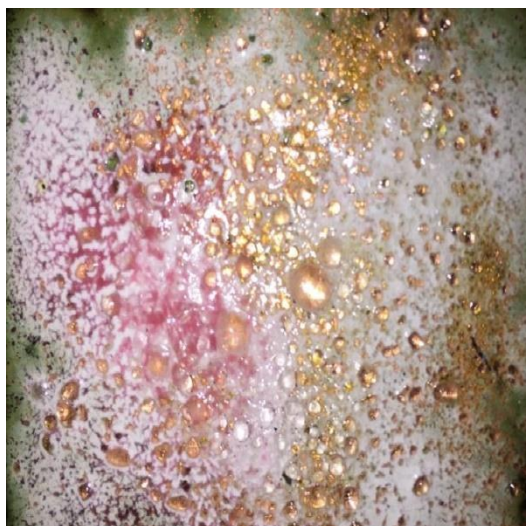
**Self-study experience**

**The tangible effects resulting from the combination of opaque white enamel, breaking of agate stone and transparent red enamel**



**Self-study experience**

**The effect of heat on the color of the stone has turned the color of the Yemeni red agate stone to light brown**



**A self-study experiment demonstrating the transparency resulting from the combination of quartz stone and opaque white enamel  
And transparent red enamel**

### **References:**

1. Mcgrath ،14. Jinks : Melalsmithing for jewelry makers – Thames &Hudson ,London:p254

#### **Websites:**

2. <https://fantasia-mining.myshopify.com/products/mr-lapis>
3. <http://www.paraskope.de/ahjarkaremacateye.html>
4. <https://www.gemstones-ar.com/quarts-stone-benefits.html>
5. <https://www.gemstones-ar.com/hematite-stone.html>