

Smalti Murano Glass *Tessella's* Applied Outdoor in the *Trencadís* Catalan Modernism Mosaic: Recognition of Preliminary Alteration Patterns

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1 Introduction

The traditional coloring agents commonly used for Murano glass are a limited number of metal ions which, by absorbing part of the incident light, give rise to a great diversity of colorations.

During the process of mixing, melting, forming and subsequent cooling of the piasters, they acquire various primary defects that alter their surface quality. These primary defects not only devalue their appearance but can also reduce their durability expectations as they are the source of new secondary anomalies that appear with the passage of time and exposure to the weather.

The objective of this research is to develop a procedure that allows grouping and ordering the various references of Murano glass available according to their apparent surface quality, so that artisans can select and use those references that, for the same color, have fewer primary defects. In order to favor this objective, the following inspection methodology, census and assessment of surface quality were proposed.



Figure 1. Left: test piece for trencadís coating tests made with smalti Murano glass tiles. Right: referenced glass samples analyzed in this study (source: authors).

2 Methodology

An universe of 77 references and 2 pieces for each reference, have been digitized. To assess the visible surface quality of each sample on each face:

- an initial value of 10 has been granted to each face.
- for each face of each piece examined, a qualitative assessment of each defect has been made, giving a value of -1 if the said defect is generalized or 0 if it is punctual or non-existent.

3 Conclusions

About the references of Murano glass, the results are as follows:

Table 1. Average distribution of quality by colours.

Quality	Brown	Violet	White	Blue	Green	Orange	Yellow	Red	Pink	Black	Grey
High	11.76%	33.33%	40%	9.09%	0%	14.29%	60%	0%	0%	0%	0%
Medium	52.94%	66.67%	40%	54.55%	68.75%	57.14%	40%	60%	100%	100%	100%
Low	35.28%	0%	20%	36.36%	31.25%	28.57%	0%	40%	0%	0%	0%

Murano Smalti glass has been revealed as a material with a high amount of concurrent surface primary defects, defects that affect similarly to its two faces, although they predominate on its face (B). It can be concluded because most of the primary defects observed are inherent to the product as it is currently produced and few others are inherent to the face (B), which is in contact with the forming table.

The results of this preliminary study, although they illustrate quite clearly the primary defects that this material suffers, should still be considered indicative, since several limiting causes must be considered:

- these are parts from references of a single manufacturer and have been voluntarily selected by the manufacturer itself to be a sample.
- these are cut pieces of larger *pistras*; In the reality of the work, this intermediate format is not used, but each tile is extracted, by fractionation, from any area of the *piestra*.
- the number of references and colors analyzed in each range is not equivalent.

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