

Investigation report 28631

Overpelt, 2018 November 17th

Commissioned by Mr. Alejandro Alonso

Spain

Concerning: Investigation of a Chinese moonflask



Fig.1 Front view.



Fig.2 Back view.



Fig.3 Side view

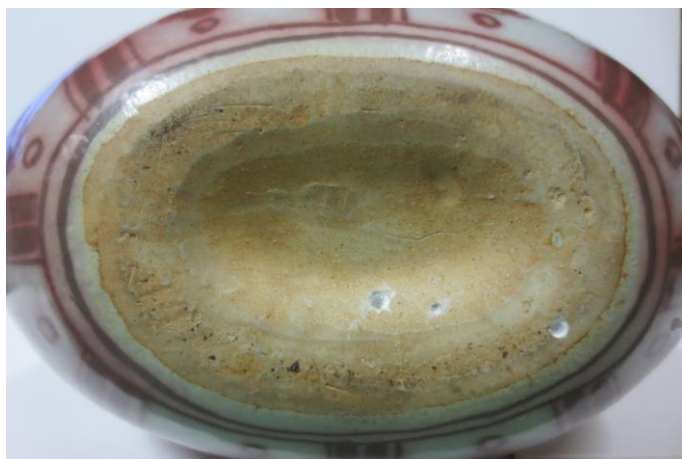


Fig.4 Bottom view

Culture / Period :Ming

Description:

Hand made porcelain Chinese moonflask decorated with red-white floral motifs and music playing and dancing people.



Fig. 5 Harp player



Fig. 6 Horn player



Fig. 7 Dancing person



Fig. 8 Tambourin man



Fig. 9 Flute player



Fig. 10 Floral motifs

Marks: No marks nor text.

Measurements:

| | | | |
|------------|-------------|----------------|-----------------------------------|
| Height | 355 mm | | |
| Max. width | 284 mm | | |
| Min. width | 171 mm | | |
| Neck | 100 mm | diameter neck: | outside : 52 mm Inside : 41 mm |
| Foot rim | 115 x 75 mm | | |
| Weight | 3064.2 g | | |

Evaluation : Normal thickness for Ming porcelain

Technique:

Hand made and painted. Build up in two horizontal assembled pieces (see second radiograph). Traces of handmanufacturing (comb marks) are found into the neck (see photographs).

Observations:

Radiography: 100NIF, 60kV 10mA 30 sec

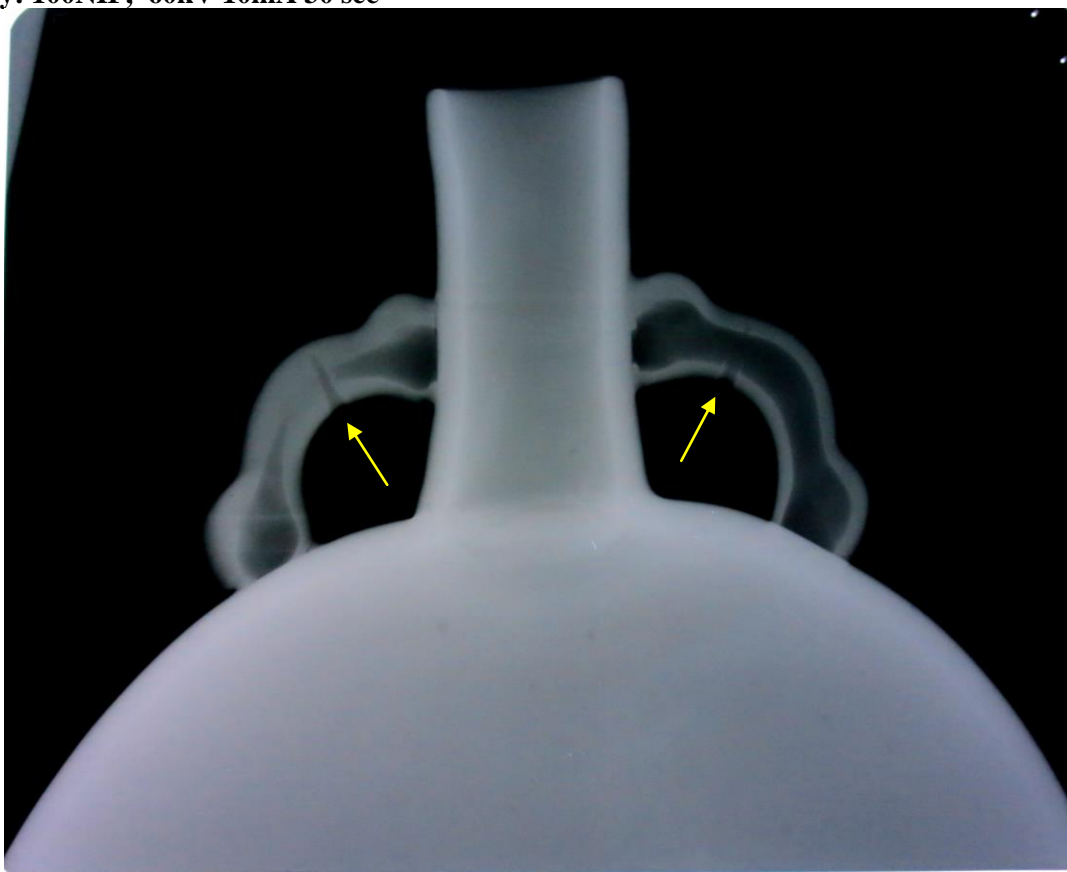


Fig. 11 The wear rings are fully hand made . Remark the sampling holes on each underside of the ring.

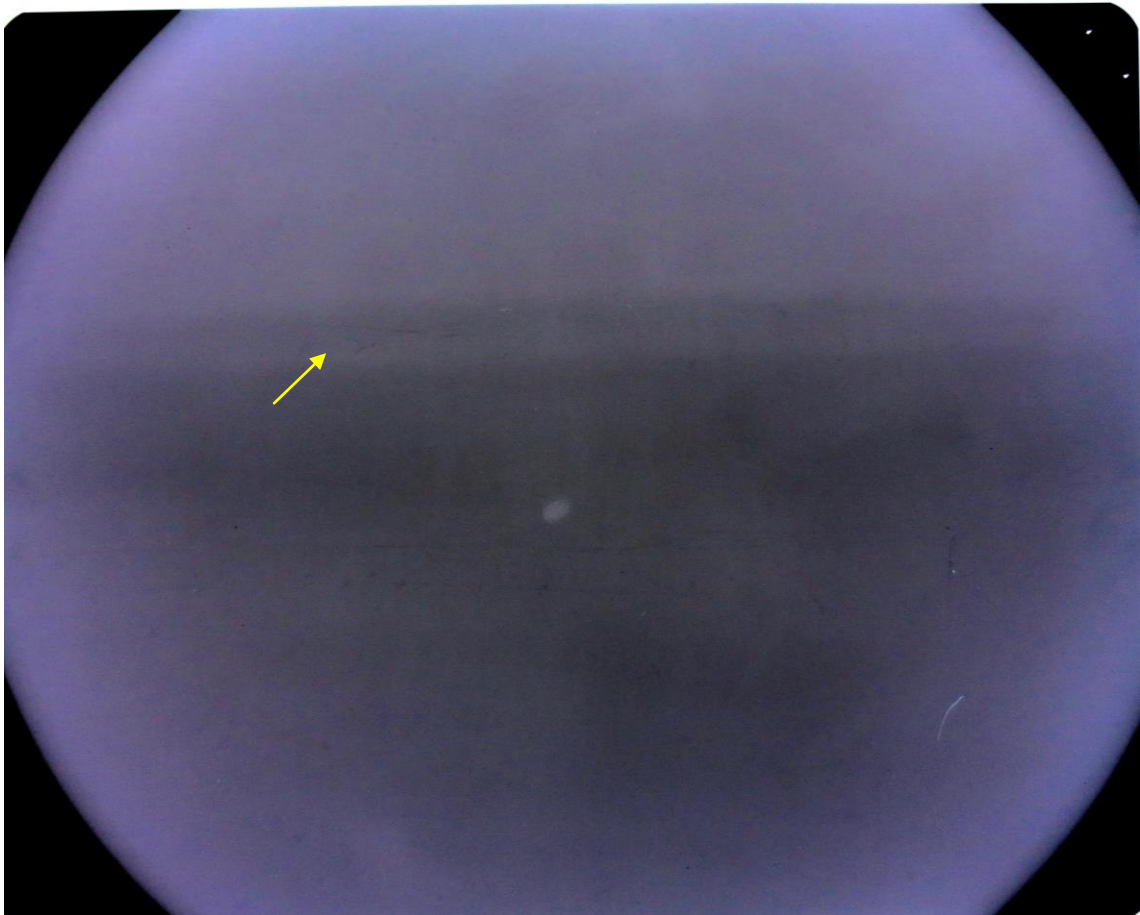


Fig. 12 Remark the horizontal assembly ring (arrow). The white spot in the center is a ceramic surface bubble into the inside of the belly.

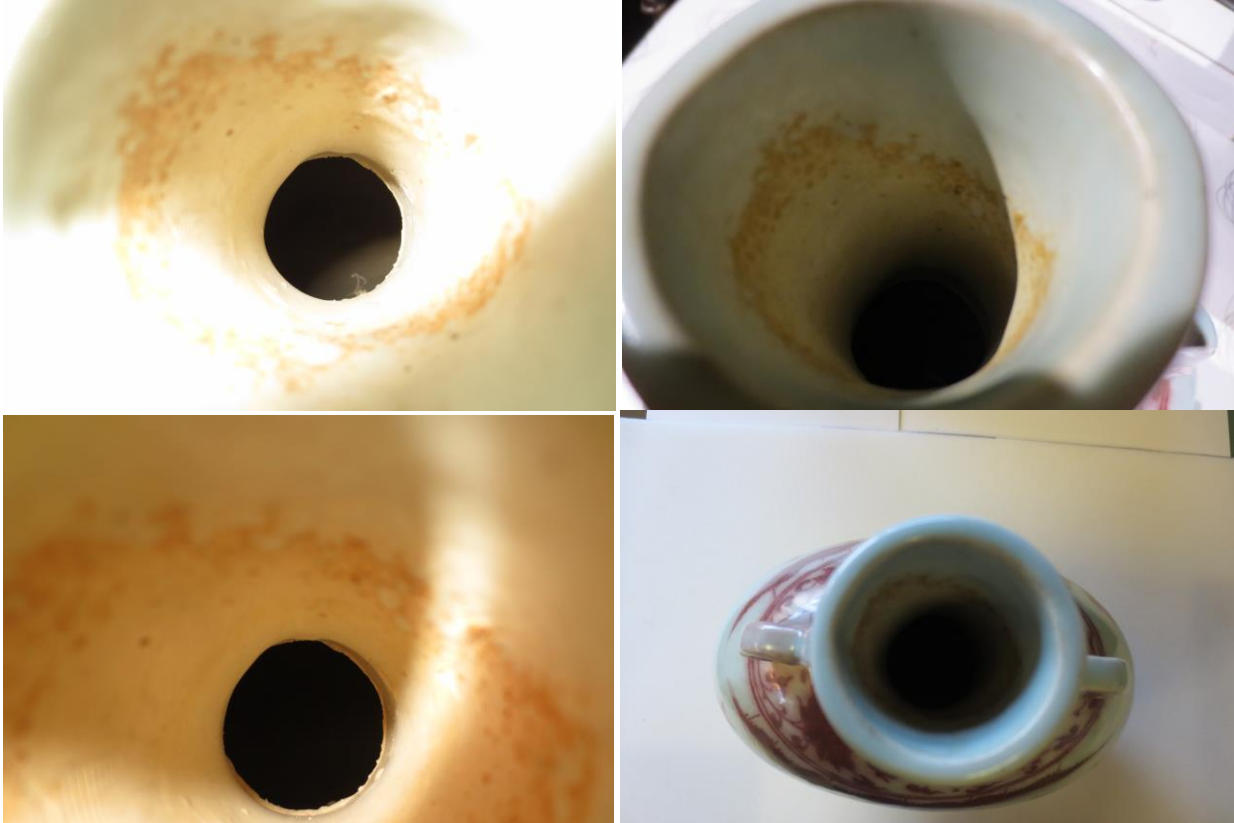
Evaluation: no damage is found into the core of the object. The flask is build in a Ming traditional way, hand manufactured.

Observation under UV radiation (385 nm)



No fluorescence. Full absorbance by the glaze as it should be for under glaze painted Ming porcelain.

Visual observation of the neck



Figs. 13: The neck has been glazed as far as a hand can reach.

Microscopic observation of the inner surface of the neck

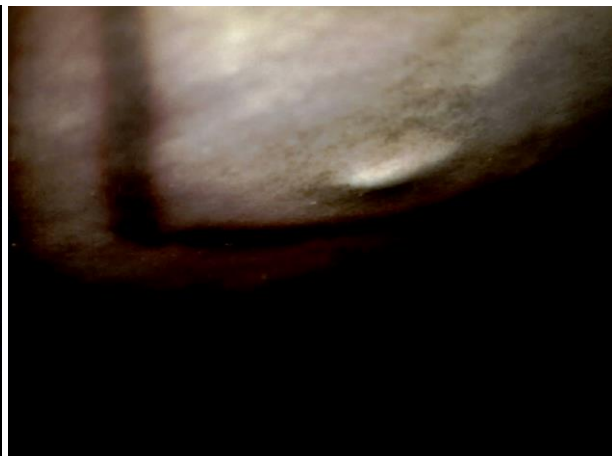


Rim due to manual assembling of the neck and belly.



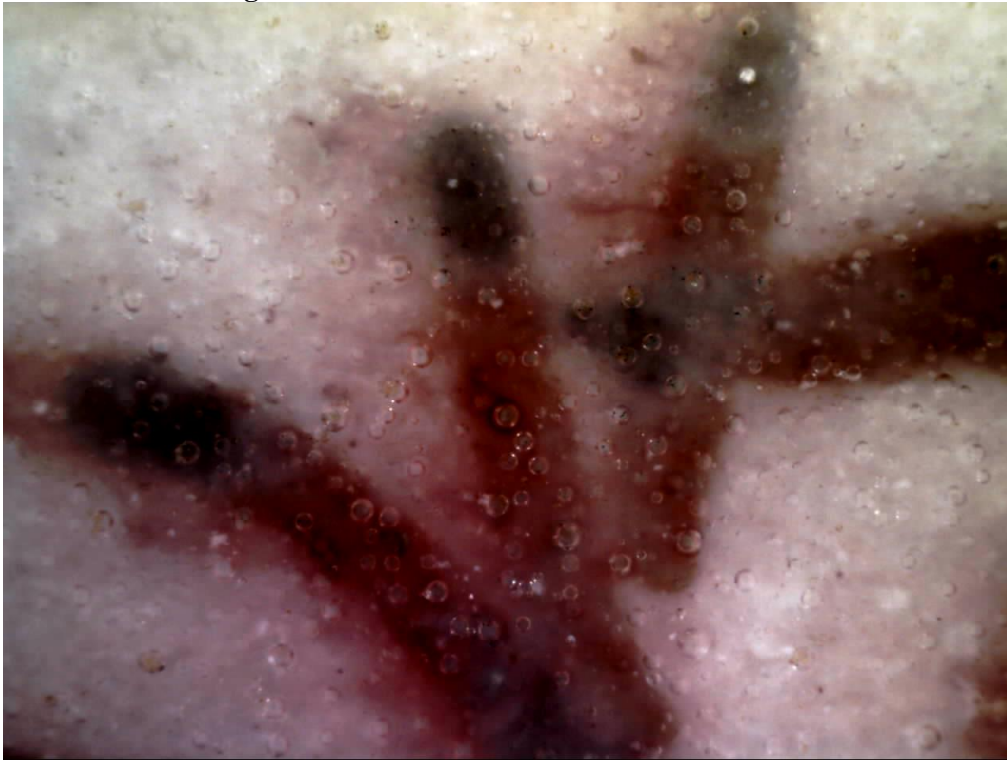
The use of a comb for modelling and surface treatment

Observation of the inner surface



There is white slab on the inner surface. Not glazed. Remark the bobble (right,up) also visual on the radiograph.

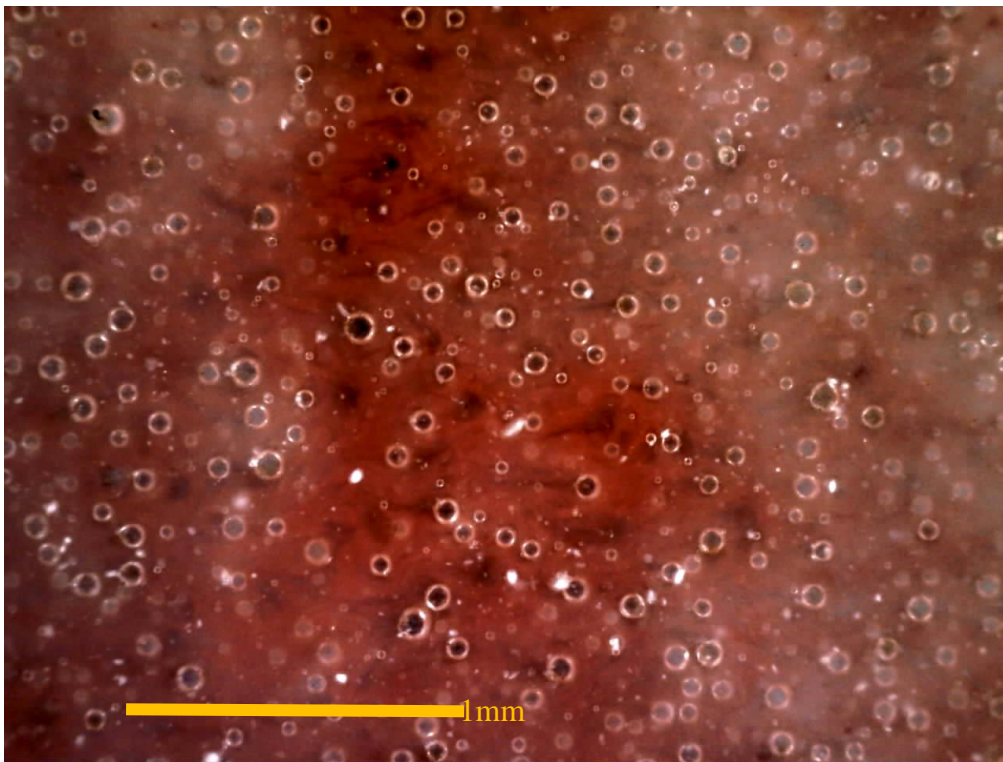
Observation of the glaze



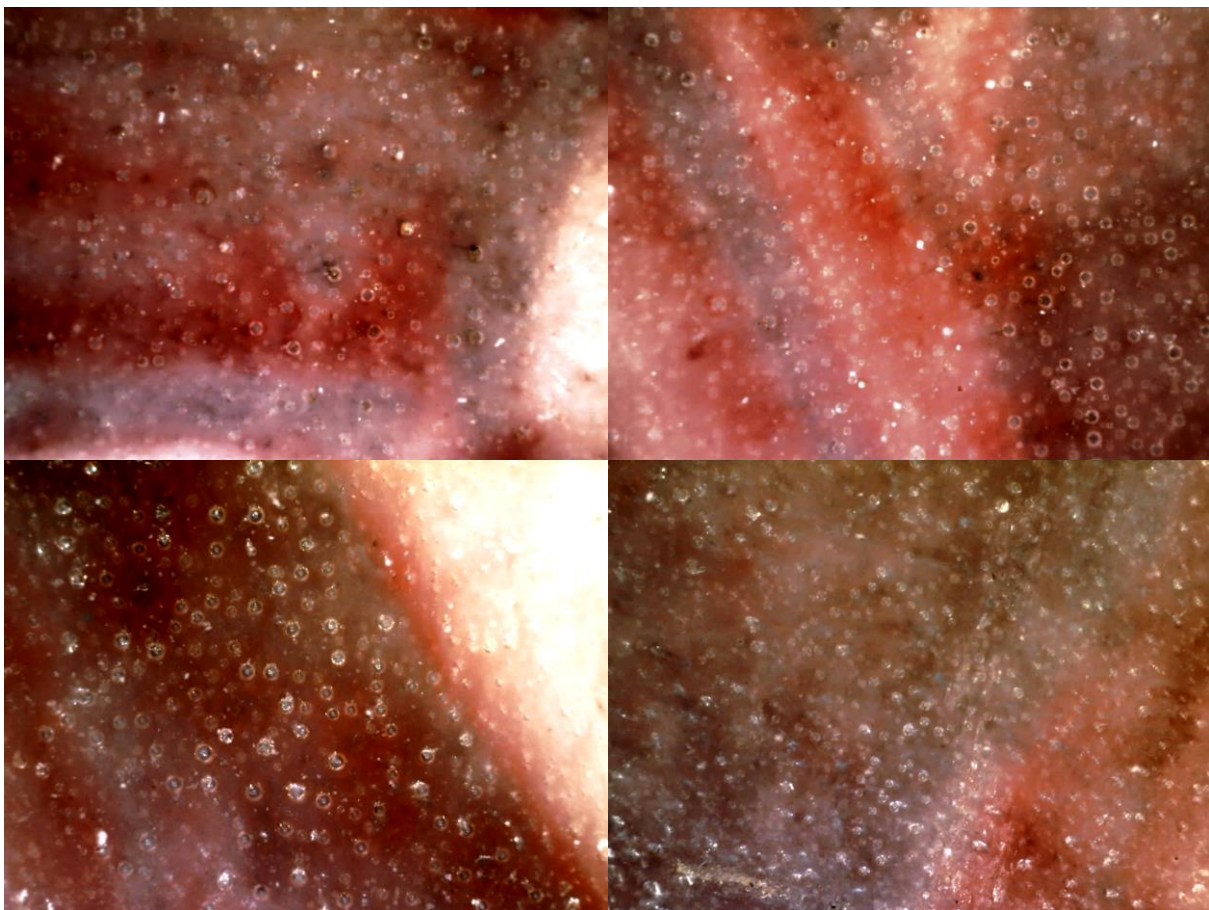
The red painting is full under glaze (copper pigment).
Dark blue purple color (spot at the end of the red lines) is due to a to high copper content.
(common in Hongwu reds but improved during Yongle period)



High copper content gives purple grey shades. In later periods it was better under control.

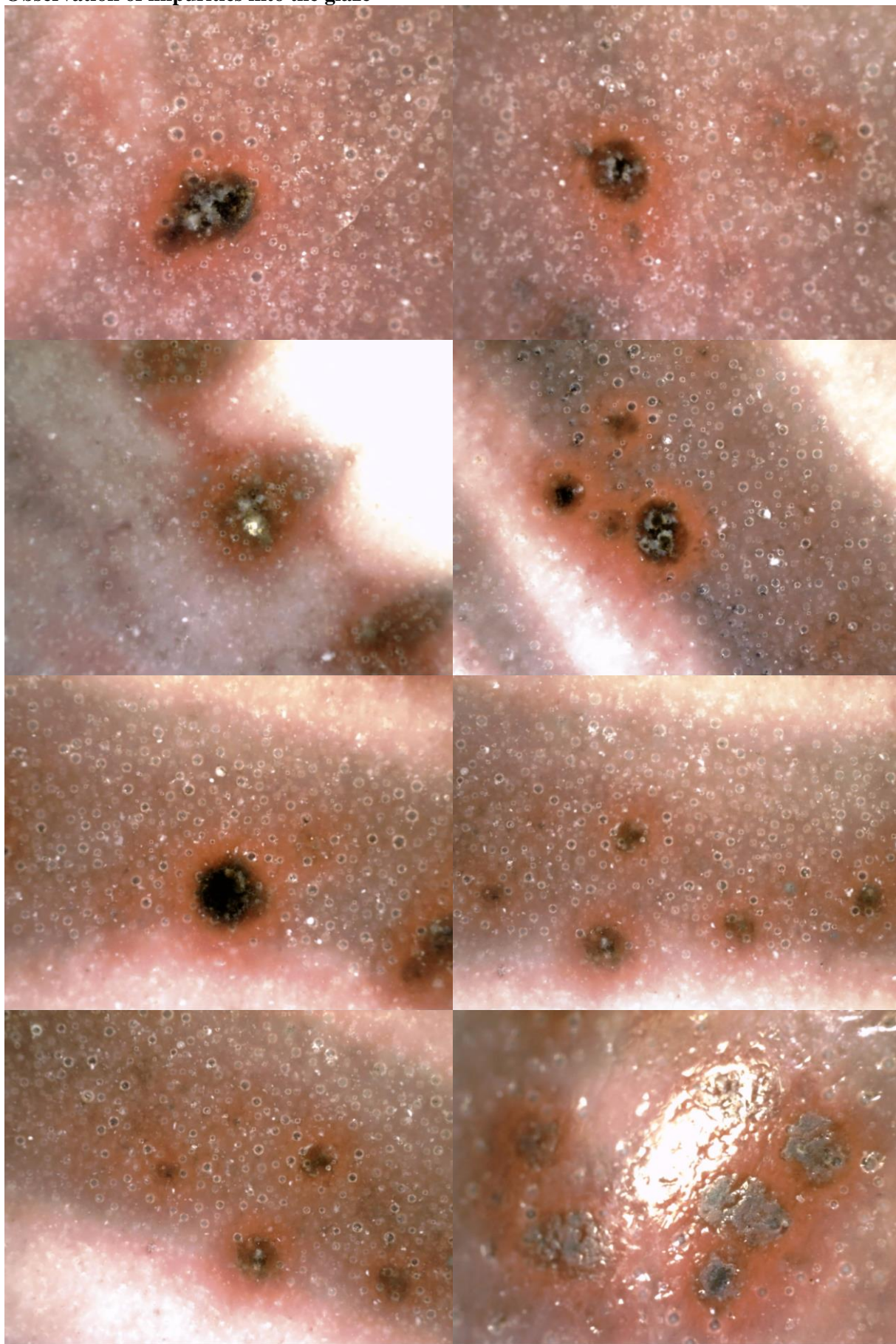


Remark the black (dark brown) spots of unsolved iron particles. (often bleeding through the glaze surface). About 10% dead bubbles, mostly brown. Average bubble diameter: 50 μ m.

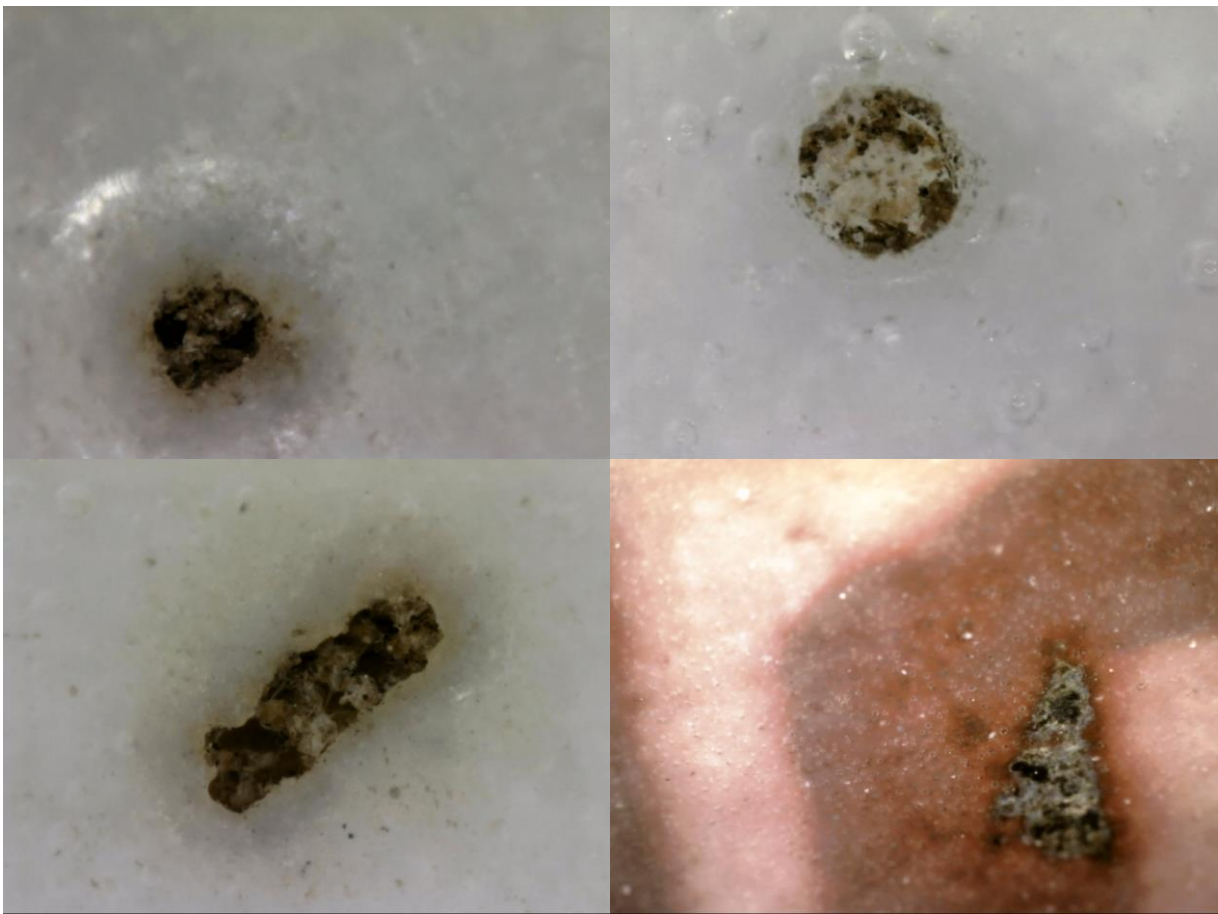


Air bubbles into the glaze.

Observation of impurities into the glaze

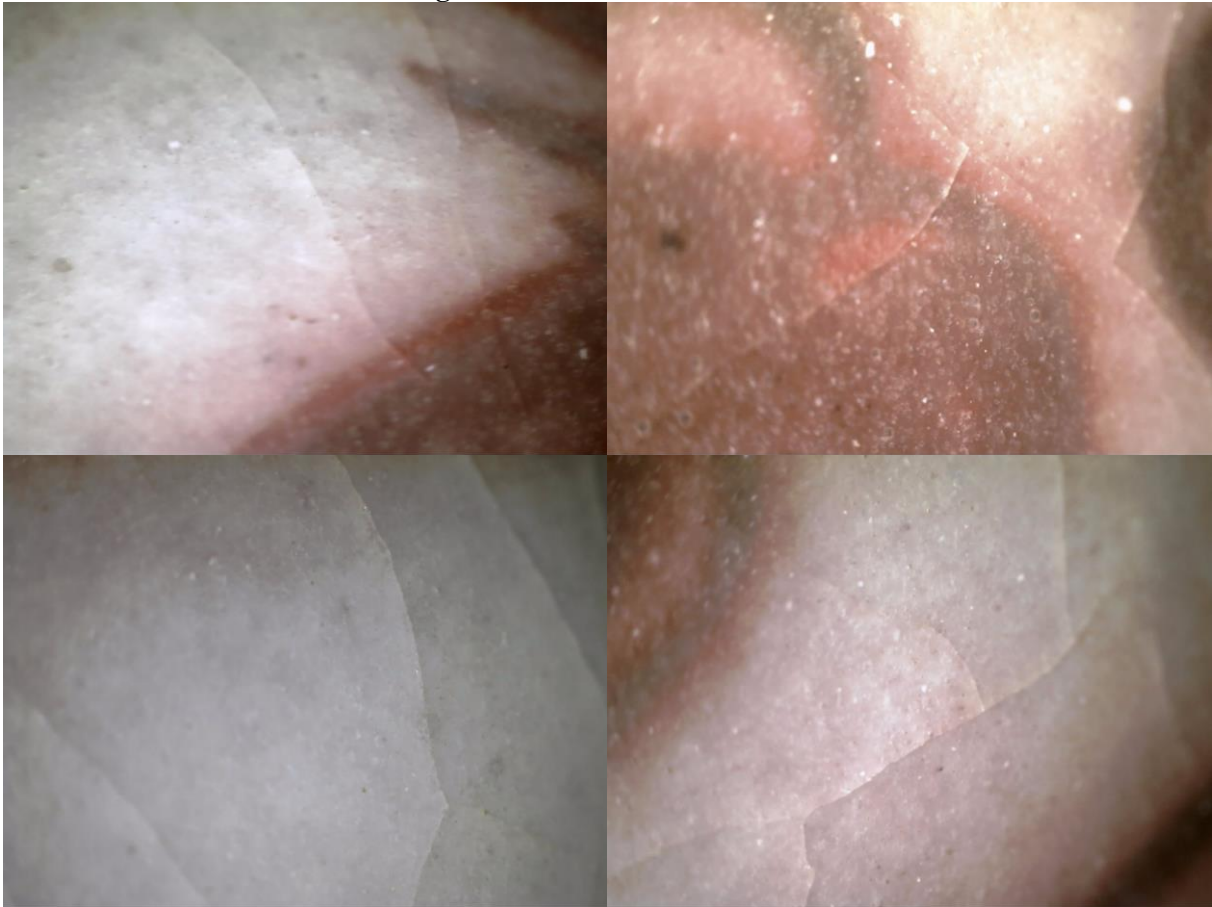


Iron particles bleeding through the glaze surface. This impurity is common in red Ming porcelain glazes.



Impurities in the glaze surface.

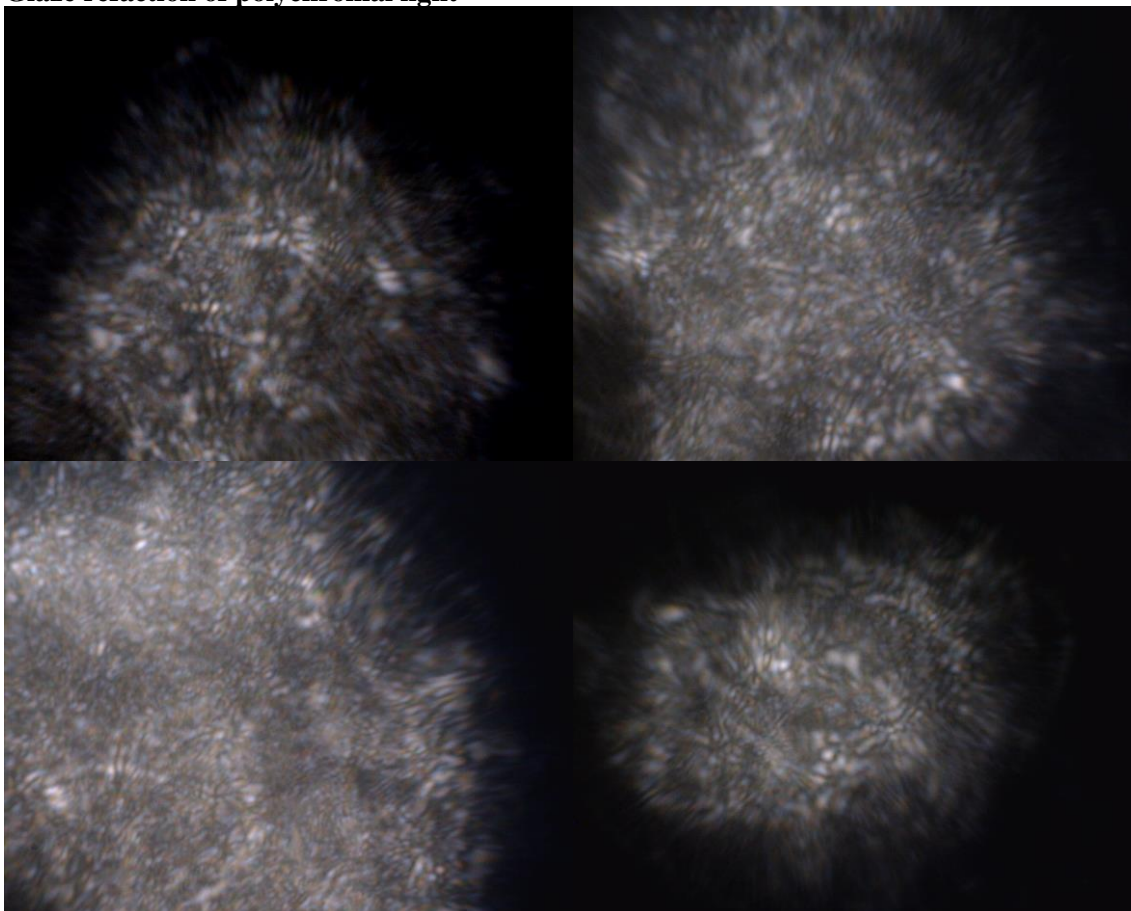
Observation of the cracks into the glaze





The cracks are well closed and most of them occur at the underside of the belly.

Glaze refraction of polychromal light



Typical polychromal refraction patterns of Ming glaze.

Chemical analysis of the red glaze (by EDXRF)

| | |
|------------------------------------|--------|
| SiO₂ | 70.3 % |
| Al₂O₃ | 14.6 % |
| Fe₂O₃ | 1.08 % |
| TiO₂ | 0.03 % |
| CuO | 0.42 % |
| CaO | 5.92 % |
| MgO | 0.28 % |
| K₂O | 4.13 % |
| Na₂O | 2.77 % |
| P₂O₅ | 0.07 % |

Evaluation: in compliance with red copper glazes of the Yongle period. (Yongle reds early 15th century)

| Results | Read values | Normalized |
|--------------------------------|-------------|------------|
| | % | % |
| Al ₂ O ₃ | 18,5 | 19,3 |
| As | 0,0000 | 0,0000 |
| Bi | 0,0009 | 0,0009 |
| CaO | 0,55 | 0,57 |
| Cd | 0,0000 | 0 |
| Co | 0,0000 | 0,0000 |
| Cr | 0,0010 | 0,0011 |
| CuO | 0,0021 | 0,0022 |
| Fe ₂ O ₃ | 0,92 | 0,96 |
| Ge | 0,0012 | 0,0012 |
| In | 0,0005 | 0,0005 |
| MnO | 0,046 | 0,048 |
| Ni | 0,0010 | 0,0010 |
| Pb | 0,0025 | 0,0026 |
| Tl | 0,0000 | 0 |
| V | 0,0006 | 0,0006 |
| ZnO | 0,021 | 0,022 |
| BaO | 0,007 | 0,0078 |
| Hg | 0,013 | 0,014 |
| Mo | 0,0025 | 0,0026 |
| Sb | 0,0000 | 0,0000 |
| Se | 0,0017 | 0,0018 |
| Sn | 0,0018 | 0,0019 |
| Sr | 0,0062 | 0,0065 |
| TiO ₂ | 0,053 | 0,055 |
| MgO | 0,18 | 0,19 |
| K ₂ O | 1,69 | 1,76 |
| Na ₂ O | 0,53 | 0,55 |
| SiO ₂ | 73,4 | 76,5 |
| Th* | 0,0001 | 0,0001 |
| U* | <=0,0001 | <=0,0001 |
| Total | 95,95 | 100 |

Evaluation: Complies with Ming dynasty Yongle period (AD 1403 – 1425)

References:

Porcelain analysis by PIXE PACS: 32.30 Rj ; 82.80 Ej ; 91.65.ND Cheng, Zhang, Xia, Jiang and Yang - Univ. of Shanghai, China

Statement

None of the observations or analyses give rise to a suspicion of forgery or contemporary copy.
All of the investigations are in compliance with Ming porcelain of the Yongle period (AD 1403-1425)

This statement is an opinion and therefore gives no right to redress or liability of any kind.

Overpelt, 2018 November 17th



RJM. Bové



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