March 2019

Description of available ARA-LT® samples

1) Standard PVD laser-markings on glass and mosaics (specification on request)

a) Gold:
- purity: 99,99 %
- very good adhesion
- brushed surface structure due to treatment with a sponge

b) Silver:
- purity: 99,99 %
- very good adhesion
- bad abrasion resistance
- brushed surface structure due to treatment with a sponge
- tarnish possible

c) Aluminium:
- purity: > 99.5 %
- very good adhesion
- reasonable abrasions resistance
- brushed surface structure due to treatment with a sponge

d) Steel:
- 1.4404 (stainless steel)
- excellent adhesion and abrasion resistance
- brushed surface structure due to treatment with a sponge

e) Chrome:
- purity: > 99,5 %
- excellent adhesion and abrasion resistance

f) Titanium:
- purity: > 99,5 %
- excellent adhesion and abrasion resistance

g) Black:
- Ti-SiO_x compound
- good adhesion
- reasonable abrasion resistance on glass
- very good scratch resistance on mosaics

h) Hi-Con:
- Cu-Ag compound
- electrical resistivity < 0,1Ω
- very good adhesion

2) Laser PVD markings, made with other materials

a) Copper:
- purity: > 99 %
- very good adhesion

b) Brass:
- Cu-Zn compound
- very good adhesion

c) Bronze:
- Cu-Sn compound
- very good adhesion

d) Zirconium:
- purity: > 99 %
- very good adhesion and scratch resistance

e) Gold Fake:
- Al-brass compound
- very good adhesion
- scratch resistant

f) ITO and other transparent materials:
- electrically conductive or insulating – adjustable upon request
- PVD layer thickness adjustable
- plane applicable or selective
- very good adhesion and robustness

3) Large area laser coatings

a) Silver mirror:
- high reflectivity on back side (through the glass)
- short laser-coating-time (<< 1 s / cm^2)
- has to be protected because of low abrasion resistance
- only on glass available

b) Gold mirror:
- high reflectivity on back side (through the glass)
- short laser-coating-time (<< 1 s / cm^2)
- has to be protected because of low abrasion resistance
- only on glass available

c) Aluminium mirror:
- high reflectivity on back side (through the glass)
- short laser-coating-time (<< 1 s / cm^2)
- has to be protected because of low abrasion resistance
- only on glass available

d) Selective silver mirror:

- very sharp edges
- interesting for decoration or heating purposes of mirrors

e) Brushed steel surface:

- stainless steel (1.4404)
- brushed structure by manual treatment

f) Marble appearance:

- wall surfaces can be upvalued with pictures or structures

4) Functional laser markings and coatings

a) Gold scale:

- very thin lines (ca. 15 µm)
- metallic and electrically conductive applicable on different materials
- e.g. for solar applications
- Good adhesion

b) Codes:

- Machine readable
- Available in different sizes (down to 0,3 x 0,3mm)
- QR-Codes or data-matrix-codes
- Good adhesion
- Excellent abrasion resistance

c) Easy-to-Clean:

- Laser-induces Easy-to-clean (ETC) behavior
- Similar to “Lotus-Effect”
- Metallic
- Semitransparent or transparent
- ITO-based
- Applied for patent
- Very good adhesion
- Scratch resistant
- “Full area” laser coating or selective application

d) Electrical circuits and conductive lines:

- Cu-Ag compound
- Electrical resistivity < 0,1Ω
- Very good adhesion

e) High-temperature resistant grey marking on glass

- chrome based alloy
- temperature resistance > 660 °C
- very good adhesion and robustness
- grey color is adjustable

f) High-temperature resistant white marking on glass

- zircon based alloy
- temperature resistance > 660 °C
- very good adhesion and robustness

5) Colors

a) Color code text:

- One single laser-transferable Titanium coating as basis
- Different colors adjustable with laser-settings only
- Interference based colors (no lacquers, no pigments)
- Good adhesion, but not scratch resistant
- Available only on glass