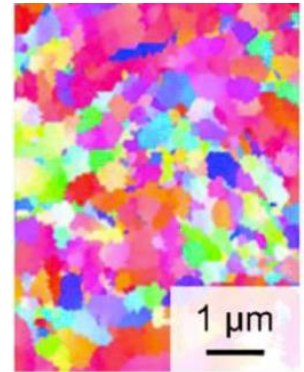


# Precious metals by ECAP

High strength pure metals and alloys without changing of composition

Severe plastic deformation by ECAP leads to improved mechanical properties of precious metals without changing chemical composition, purity or colour. The high strength and hardness also result in increased scratch resistance, for example of 24ct Au. In case of Ag alloys, the tarnishing resistance can be improved. It is possible to further process and shape the materials without loss of these features. In case of Au alloys (e.g. 18ct Au), further hardening by heat treatment can be applied and different, tailored mechanical properties can be achieved.



- /// unchanged chemical composition & colour
- /// high purity material possible
- /// **excellent strength & hardness**
- /// improved scratch resistance
- /// further conventional processing, shaping & hardening possible
- /// excellent homogeneity

| Exemplary alloy     | Condition  | Mechanical properties (minimum values) |                         |           |
|---------------------|--|--|-------------------------|-----------|
|                     |  | Rm [MPa]                               | Rp <sub>0.2</sub> [MPa] | A [%]     |
| Lean Ag-In-Ge alloy | cold drawing + heat treatment                    | 180                                    | 95                      | 70        |
| Lean Ag-In-Ge alloy | <b>ECAP</b>                                      | <b>430</b>                             | <b>410</b>              | <b>10</b> |
| Lean Ag-In-Ge alloy | <b>ECAP + conventional deformation / shaping</b> | <b>540</b>                             | <b>480</b>              | <b>5</b>  |

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