

# SILVER PROCESSES



## Silver processes for numerous technical applications



Umicore offers numerous silver electrolytes for various technical applications and fields of use. These include, for example, electrical contacts in connector technology, high-frequency technology, medical technology, and coatings for electrical packaging technology.





The following table shows the property profiles of the silver electrolytes.

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## Fine silver processes

Fine silver has extremely high electrical and thermal conductivity. As electroplated coatings, fine silver processes are therefore widely used in electronics.

|                                      | ARGUNA®<br>C-100  | ARGUNA®<br>ET   | ARGUNA®<br>629  | ARGUNA®<br>3230   |
|--------------------------------------|---|---|---|---|
| Main application and characteristics | Electrical technology, extremely wear-resistant, high number of mating cycles                       | Electrical technology, electronics  | Electrical technology, electronics  | Electrical technology, electronics  |
| Process                              | Cyanidic  | Cyanidic  | Cyanidic  | Cyanide-free  |
| Hardness of the layer                | approx. 100 HV  | 110 - 130 HV  | approx. 110 HV  | 90 - 100 HV   |
| Purity                               | Dispersion Ag-Matrix  | 99.9 % Ag   | 99.8 % Ag   | > 99 % Ag   |
| Production type                      | Rack Barrel   | Reel-to-reel<br>Rack Barrel   | Reel-to-reel<br>Rack Barrel   | Rack Barrel   |
| Website:<br>mds.umicore.com          | /arguna-c100<br> | /arguna-et<br> | /arguna-629<br> | /arguna-3230<br> |

 Cyanide-free processes







Charging plugs for electric vehicles are a typical application area for silver coatings. Due to embedded graphite particles, ARGUNA® C-100 achieves extraordinary abrasion resistance and thus enables over 50,000 mating cycles (end-of-life tribometer tests under laboratory conditions).

Hard silver processes can be used for a wide range of applications. The electrolytes are particularly suitable for connectors of all kinds thanks to their high hardness and wear resistance.

## Hard silver processes

In addition to good electrical conductivity, hard silver alloys are particularly hard. Therefore, they are mainly used for electrical contacts which have to withstand high wear.

|                                      | ARGUNA®<br>3430   | ARGUNA®<br>630   | ARGUNA®<br>635  | ARGUNA®-<br>Alloy 1  |
|--------------------------------------|---|--|---|--|
| Main application and characteristics | Electrical technology, wear-resistant   | Electrical technology, wear and vibration resistant  | Electrical technology, wear-resistant   | Electrical technology, temperature and wear-resistant  |
| Process                              | Cyanide-free  | Cyanidic   | Cyanidic  | Cyanide-free   |
| Hardness of the layer                | 170 - 200 HV  | 160 - 180 HV   | 180 - 190 HV  | 280 HV   |
| Purity                               | 97 - 98 % Ag  | 97 - 98 % Ag   | 99 % Ag   | 90 - 95 % Ag   |
| Production type                      | Rack Barrel   | Reel-to-reel<br>Rack Barrel  | Rack Barrel   | Reel-to-reel<br>Gestell  |
| Website:<br>mds.umicore.com          | /arguna-3430<br> | /arguna-630<br> | /arguna-635<br> | /arguna-alloy<br> |

 Cyanide-free processes



Passion for  
perfect surfaces

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