

# Silver Products



Silver truly packs a punch given its unique combination of intrinsic antimicrobial properties, high electric conductivity and ductility. This combined with the commitment to quality and delivery means the Alfa Aesar™ portfolio of silver products have been used extensively in a wide range of applications from medical and pharmaceutical to catalysis, energy and advanced optoelectronics that touch everyday life.

Our specialized silver compounds are available in catalog sizes to bulk quantities. We offer the capability to produce batch sizes up to 200 kg. Bulk packing sizes are customized to meet our customers' requirements.

## Key Features:

- Large selection of silver compounds can be manufactured up to a purity of 99.999%.
- Most other silver products are manufactured to 99.9% purity as standard.
- A batch specific certificate of analysis is produced for each product.
- Each silver product batch has:
  - Full metallic impurities typically measured by ICP-MS to ppm
  - Measured silver content
- Specialized silver compounds outside our catalog range can be manufactured on request.

## Application highlights:

### Chemical

Many silver salts are the chemical precursors for other silver derivatives or metallic silver. Silver carbonate has been employed in the Koenigs-Knorr reaction, a substitution reaction of a glycosyl halide with an alcohol to give a glycoside. Silver salts of carboxylic acids are used to produce organic halides (Hunsdiecker reaction). Silver products also play a critical role in the catalysis of chemical manufacturing processes that provide the building blocks for many day-to-day products.

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### **Pharmaceutical**

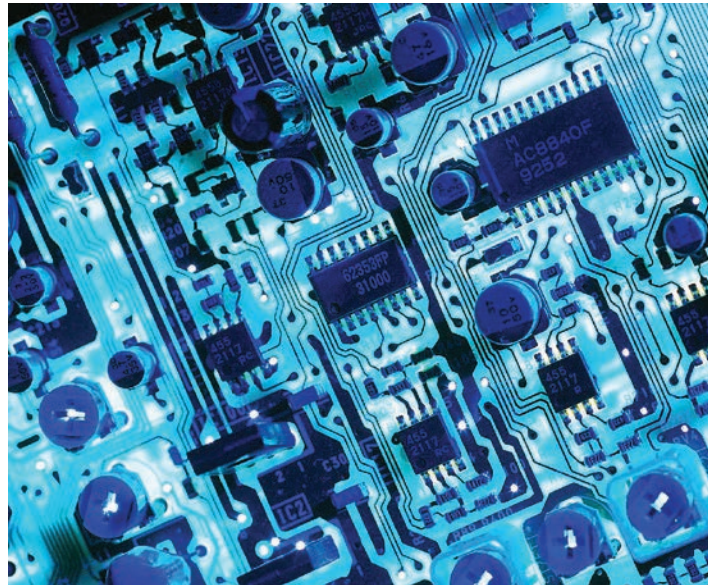
The medicinal properties of silver salts have been used in a range of pharmaceutical compositions. Silver staining is a key application in histology for studying proteins and nucleic acids.

### **Medical and medical devices**

Silver and silver salts have been used extensively throughout history for a variety of medical purposes. Silver in many forms including silver sulfate, silver acetate, silver nitrate and nano silver are used in sterile dressings, wound treatment, surgical instruments and medical device applications.

### **Water purification and treatment**

Whether for filtration or industrial applications, such as pools, silver products are used to prevent bacterial build up and disinfect water.



### **Energy**

From photovoltaics and fuel cells to silver zinc and silver oxide batteries used in small devices and wearables to large scale missile applications, silver products provide high energy density and greener options.

### **Electronics**

Silver products are superior for bondability, solderability and are corrosion resistant. Given their durability and high conductivity silver products are used in electrical contacts and printable electronics for mobile devices, automotive and displays.

### **Electrodes for potentiometric measurement**

For potentiometric measurement, silver/silver chloride electrodes are used as a matter of choice.



The Alfa Aesar portfolio includes an extensive range of specialized silver products, with over 70 products available and the capability to produce large batch sizes. Below is a listing of some of our products. The full product listing is available online.

### Pure silver products

| Stock No. | Description  | Size                                   |
|-----------|--|--|
| 40511     | Silver casting grain, 1.6-6.35mm (0.063-0.25in), 99.9% (metals basis)              | 25g, 100g, 250g                        |
| 42469     | Silver conductive adhesive paste   | 15g                                    |
| 44075     | Silver conductive adhesive paste   | 50g                                    |
| 12190     | Silver foil, 0.025mm (0.001in) thick, annealed, 99.95% (metals basis)              | 150x150mm, 150x600mm, 150x1000mm       |
| 00501     | Silver foil, 0.075mm (0.003in) thick, hard, 99.95% (metals basis)                  | 25x150mm, 150x150mm                    |
| 11440     | Silver foil, 0.127mm (0.005in) thick, annealed, 99.9% (metals basis)               | 50x50mm, 100x100mm, 200x200mm          |
| 42317     | Silver foil, 0.1mm (0.004in) thick, annealed, Premion®, 99.998% (metals basis)     | 50x50mm, 100x100mm, 100x500mm          |
| 40935     | Silver gauze, 50 mesh woven from 0.0764mm (0.003in) dia wire                       | 75x75mm, 150x150mm, 300x300mm          |
| 40936     | Silver gauze, 80 mesh woven from 0.115mm (0.0045in) dia wire, 99.9% (metals basis) | 25x25mm, 75x75mm, 150x150mm, 300x300mm |
| 39697     | Silver needles, 99.999% (metals basis)   | 10g, 50g                               |
| 00690     | Silver powder, -100 mesh, 99.95% (metals basis)                                    | 25g, 100g                              |
| 11402     | Silver powder, APS 4-7 micron, 99.9% (metals basis)                                | 10, 50g, 250g                          |
| 00678     | Silver powder, spherical, -325 mesh, 99.9% (metals basis)                          | 10g, 50g                               |
| 11436     | Silver shot, 1-5mm (0.04-0.2in), 99.9% (metals basis)                              | 10g, 50g, 250g                         |
| 12186     | Silver shot, 1-5mm (0.04-0.2in), Premion®, 99.99% (metals basis)                   | 10g, 50g, 250g                         |
| 11357     | Silver shot, 1-7mm (0.04-0.1in), Premion®, 99.999% (metals basis)                  | 10, 50g, 250g                          |
| 14153     | Silver shot, 2-3mm (0.08-0.12in), Premion®, 99.999% (metals basis)                 | 10, 50g, 250g                          |
| 14259     | Silver tubing, 6.35mm (0.25in) OD, 4.35mm (0.171in) ID, 99.9% (metals basis)       | 10cm, 50cm, 4x50cm                     |
| 41454     | Silver wire, 0.127mm (0.005in) dia, hard, 99.9% (metals basis)                     | 25m, 100m                              |
| 12187     | Silver wire, 0.25mm (0.01in) dia, annealed, 99.9% (metals basis)                   | 25m, 100m, 500m                        |
| 11433     | Silver wire, 0.5mm (0.02in) dia, 1/2 hard, 99.9% (metals basis)                    | 2m, 10m, 50m                           |
| 41390     | Silver wire, 0.5mm (0.02in) dia, annealed, 99.9% (metals basis)                    | 2m, 10m, 50m                           |
| 11469     | Silver wire, 0.5mm (0.02in) dia, Premion®, 99.9985% (metals basis)                 | 1m, 5m, 25m                            |
| 11434     | Silver wire, 1.0mm (0.04in) dia, annealed, 99.9% (metals basis)                    | 1m, 5m, 25m                            |
| 11466     | Silver wire, 1.0mm (0.04in) dia, Premion®, 99.999% (metals basis)                  | 50cm, 2.5m, 10m                        |
| 11435     | Silver wire, 2.0mm (0.08in) dia, annealed, 99.9% (metals basis)                    | 50cm, 2.5m, 10m                        |
| 11465     | Silver wire, 2.0mm (0.08in) dia, Premion®, 99.999% (metals basis)                  | 25cm, 100cm, 500cm                     |
| 42860     | Silver wool, 99.9+% (metals basis)   | 1g, 5g, 25g                            |

Full product listing is available online.

## Silver compounds

| Stock No. | Description   | Size               |
|-----------|---|--------------------|
| 11660     | Silver acetate, anhydrous, 99%                                | 25g, 100g          |
| 46784     | Silver bis(trifluoromethylsulfonyl)imide                      | 250mg, 1g, 5g      |
| 11420     | Silver carbonate, 99.5% (metals basis)                        | 25g, 100g          |
| 11421     | Silver chloride, 99.9% (metals basis)                         | 25g, 100g, 500g    |
| 10857     | Silver chloride, Premion®, 99.997% (metals basis)             | 5g, 25g, 100g      |
| 11538     | Silver hexafluoroantimonate, 99%                              | 1g, 5g, 25g        |
| 11873     | Silver hexafluorophosphate, 98%                               | 1g, 5g, 25g        |
| 11419     | Silver iodide, 99.9% (metals basis)                           | 25g, 100g          |
| 20835     | Silver lactate  | 10g, 50g           |
| 45509     | Silver nanopowder, APS 20-40nm, 99.9% (metals basis)          | 5g, 25g            |
| 43087     | Silver nitrate, Premion®, 99.995% (metals basis), Ag 63% min  | 5g, 25g, 100g      |
| 10858     | Silver nitrate, Premion®, 99.9995% (metals basis)             | 5g, 25g, 100g      |
| 42209     | Silver perchlorate, anhydrous                                 | 5g, 25g, 100g      |
| 41443     | Silver sulfate, Premion®, 99.99% (metals basis), Ag 68.9% min | 25g, 100g          |
| 12112     | Silver sulfate, Premion®, 99.999% (metals basis)              | 5g, 25g, 100g      |
| 11416     | Silver sulfide, 99%   | 5g, 25g, 100g      |
| 12113     | Silver sulfide, Premion®, 99.995% (metals basis)              | 5g, 25g            |
| 11539     | Silver tetrafluoroborate, 99%                                 | 10g, 50g           |
| 13933     | Silver trifluoroacetate, 98%                                  | 5g, 25g            |
| 88722     | Silver trifluoromethanesulfonate, 98%                         | 2g, 10g, 50g       |
| 45496     | Silver(I) citrate hydrate                                     | 5g, 25g, 100g      |
| 11609     | Silver(I) fluoride, 98%                                       | 5g, 25g            |
| 42577     | Silver(I) oxide, 99.99% (metals basis)                        | 1g, 5g, 25g, 4x25g |
| 11407     | Silver(I) oxide, 99+% (metals basis)                          | 25g, 100g, 500g    |
| 43268     | Silver(I) oxide, Electrical Grade                             | 250g, 1kg          |
| 11610     | Silver(II) fluoride, 98+%                                     | 2g, 10g, 50g       |
| 22695     | Silver(II) oxide, 98%   | 5g, 25g, 100g      |
| 40187     | Silver(II) oxide, 99.9% (metals basis), Ag 86.6% min          | 5g, 25g, 100g      |

Full product listing is available online.

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