Bray Group Ltd

PRODUCT SAFETY DATA SHEET

Caustic Pencil & Caustic Applicator

1. Identification of the products and company

Products and uses:	Caustic pencils or applicators, consisting of plastic handles bearing small active tips of various forms of toughened silver nitrate, for medicinal use in the treatment of warts, verrucae, granulation tissue, for cautery and as a medicinal caustic.
Special notes:	Users must follow carefully the medical instructions supplied with each type of product. Much of the information included on this safety data sheet refers only to the chemical components of the caustic tips when the products are removed from their packaging ready for use. However, the caustic tips constitute only a small percentage weight proportion of the total product weight (including the relatively inert plastic handles and primary packaging). Thus the bulk products are a considerably diluted form of the pure active tips, and for many purposes are substantially less hazardous.
Product Codes:	75, 75/L, 77, 80, 80/L, 80/S, 81, 82, 83, 90, 453, 680, 6240, 7382, 7383, 7482, 7600, 118-395
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2. Composition and information (on chemical components of active caustic tip mixture)

Chemical identity:	Silver nitrate BP ($AgNO_3$) fused with potassium nitrate BP (KNO_3).
CAS numbers:	Silver nitrate: 7761-88-8; potassium nitrate: 7757-79-1.

3. Hazards identification

General:	The ACTIVE CAUSTIC TIP MIXTURE itself is medically caustic and irritating to eyes, mouth and skin, is toxic by ingestion, and a mild oxidising agent. It may form explosive mixtures with some substances, though the bulk product in this form is not a net oxidising agent in, for example, a fire. There are no significant long-term environmental effects in small quantities.

4. First-aid measures

Ingestion:	Poisoning by ingestion is unlikely in view of the manner of dosage and quantities involved. But when ingested seek medical attention immediately. Do not induce vomiting. Never give anything by mouth to an unconscious person. Medical personnel

	should give repeated stomach washouts with 1% sodium chloride solution, then administer 30 grammes of sodium sulphate in 250 ml of water, allowing this to remain in stomach. Demulcents such as egg-white, milk and paraffin may be given, with pethidine or morphine as necessary. Give supporting treatment for pain, and pay close attention to renal function and fluid balance.
Inhalation:	Inhalation is very unlikely with product in form supplied. However if dust is inhaled remove victim to fresh air immediately and seek medical assistance.
Skin contact:	Rinse affected area immediately with clean cold water running continuously for at least 10 minutes. Remove contaminated clothing under running water and launder before re-use. Seek medical assistance as necessary. In less serious cases any blue / brown / black staining that arises may be superficial only, not require special treatment, and shed harmlessly and without trace after a short time.
Eye contact:	Injury may be chemical or physical due to impact or scratching. Remove contact lenses. Immediately flush eye(s) repeatedly with large quantities of clean cold water or eyewash for at least 10 minutes. Seek medical attention at once. Treat as a chemical burn if appropriate.

5. Fire-fighting measures

General risks:	Active tip caustic mixture is a mild oxidising agent but is not combustible. The bulk product is not a net producer of oxygen in a fire as the very small quantity of available oxygen is consumed concomitantly by tiny proportions of the other components. In general risks are as bulk quantities of relatively inert plastic components and packaging. The caustic material itself may form explosive mixtures with certain inorganic and organic substances.
Extinguishing media:	For small fires a CO2 extinguisher may be used. Avoid spreading material with a water jet. Caustic mixture is water-soluble, so drenching quantities of water can be used.
Special risks:	Hot molten caustic mixture in pure form is chemically strongly corrosive and causes serious heat and chemical burns, though this situation is very unlikely to arise with this product.
Special procedures:	Fire-fighting personnel should wear self-contained breathing apparatus and chemically resistant protective clothing.

6. Accidental release measures

Personal precautions:	Protect skin and eyes from solid or solution with suitable clothing, footwear, rubber or plastic gloves, safety spectacles or goggles, as appropriate to extent of release. Silver nitrate stains clothes and inanimate surfaces.
Spillage:	Low-volume quantities of the product can be disposed of via the ordinary household or non-hazardous waste systems. Small

	quantities of caustic material can be rinsed away into domestic water-drainage systems with large amounts of running water. Treat large quantities (GT 100 g of silver nitrate) as chemical waste and contact local authority.
Environmental:	In small quantities the nitrates are not considered deleterious to the general environment. Silver nitrate precipitates to relatively harmless materials in the presence of many types of inorganic anion in solution. In exceptional quantities the salts may contribute locally and temporarily to eutrophication of rivers, etc.

7. Handling and storage

Handling:	Handle in correct packaging. Once opened use only according to product instruction sheets. Do not eat or smoke whilst handling. Practise good personal hygiene.
Storage:	Store in a cool dry ventilated area and protect product from light.

8. Exposure controls / personal protection

Respiratory protection:	None required in product form supplied.
Eye protection:	Not generally necessary if used in accordance with product instructions, but beware of caustic nature of tips and solutions. Refer to sections 3, 4 and 11.
Skin protection:	Protect skin from solid or solution as appropriate, with rubber or plastic gloves and other suitable protective clothing.

9. Physical and chemical properties (caustic tip mixture ingredients only)

Appearance:	White or off-white, but solid surface may slowly turn grey or black on exposure to air.
Odour:	Odourless.
pH value:	Solutions are slightly acidic, with pH dependent on concentrations.
Viscosity:	Not applicable.
Freezing point:	Not applicable.
Melting point:	Varies according to strength, approximately between 150o and 200o C.
Boiling point:	Not available. Decomposes on strong heating to give NOx gases.
Flash point:	Not applicable.
Autoinflammability:	Not applicable.
Explosive limits:	Not available.
Oxidising properties:	Oxidises certain inorganic and organic materials.
Vapour pressure:	Not available but very low as this is ionic solid.
Density:	Not available, but variable with product.

Bulk density:	Not available, but variable with product.
Solubility:	Very soluble in water; slightly soluble in lower alcohols; virtually insoluble in fats, oils and other hydrophobic materials.
Partition coefficient:	Not available, but expected to be negligibly low for n-octanol / water system.
Refractive index:	Not available.
Other data:	Reacts with acetylene when with ammonia to form dry-detonable silver acetylide. Can cause explosive polymerisation with acrylonitrile. Ammoniacal solutions may precipitate explosive silver nitride in presence of alkali or glucose. May form explosive products with ethanol.

10. Stability and reactivity

General:	Solid product is stable for long periods if kept dry and away from light. Shelf-life 60 months.
Conditions to avoid:	Light, moisture and high temperatures, which may lead to decomposition.
Materials to avoid:	Phosphorus, sulphur, magnesium, finely-divided charcoal, ammonia, reducing agents, organic chemicals (especially acetylene, acrylonitrile, ethanol), and combustibles.
Decomposition:	If decomposition is slow material degrades to less harmful silver metal, oxides or other species. If rapid or in fire large quantities may evolve toxic nitrates or NOx gases, but refer to section 5.

11. Toxicological information (caustic tip material only)

Ingestion:	Harmful and may be fatal if swallowed. Medically caustic and oxidising and causes burns to mouth, throat and stomach. Estimated typical lethal dose 10 g calculated as silver. Symptoms of poisoning include pain in the mouth, throat or stomach, sialorrhoea, diarrhoea, nausea, vomiting, coma or convulsions.
Inhalation:	Inhalation is very unlikely with product form as supplied. However dust would produce respiratory or gastrointestinal irritation, characterised by sneezing, coughing or burning. OES of dust is 0.01 mg / m3 calculated as silver.
Skin contact:	Caustic and staining. Product is safe if used topically on skin or mucous membranes according to instructions, but excessive amounts damage tissues depending on quantity, concentration and contact time. Prolonged exposure can give rise to burns or ulcerations.
Eye contact:	Caustic and severe eye irritant. Can cause corneal damage or blindness if lengthy contact is allowed, depending on quantity and conditions.
Chronic effects:	Chronic application of large quantities of silver nitrate products to mucous membranes or open wounds may lead to argyria, and accumulation of silver metal and compounds in the connective tissues, resulting in a local or general greyish or blackish-blue

	appearance. This effect is thought to be harmless but may persist for a long time or indefinitely. Cases of argyria are very rare. Absorption of nitrite produced by the action of certain nitrate-reducing bacteria in some burns or open wounds can give rise to methaemoglobinaemia. There is also a risk of electrolyte disturbances.
Sensitisation:	Not available.
Target organ effects:	Not available but no specific organ targeting is suspected. Large chronic doses can accumulate in connective tissues.
Carcinogenicity:	No evidence or suspicion of malignant effects if used topically as instructed.
Mutagenicity:	In vitro mutagenicity data reported but no mutagenic potential suspected for humans.
Teratogenicity:	None suspected in humans.
Development toxicity:	None suspected in humans.
Narcosis:	Not available but none suspected.

12. Ecological information

General:	Detailed ecological information not available, but no ecological problems expected provided the product is disposed of by normal routes in the low-volume quantities involved with normal product supply and use. Low long-term toxicity. Silver nitrate eventually degrades to silver metal and other species which are largely chemically and biologically inert.

13. Disposal considerations

Products:	Waste must be disposed of in accordance with Environmental Protection (Duty of Care) Regulations 1991. Check with local authority.
Packaging:	Waste must be disposed of in accordance with Environmental Protection (Duty of Care) Regulations 1991. Packaging consists generally of low toxicity plastics, paper and cardboard in small quantities.

14. Transport information

Products:	These products do not fall into any of the UN Dangerous Goods Classifications as listed in UK Statutory Instrument 1996 No 2092 (The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations 1996). They are not hazardous materials as defined by US Department of Transport (Code of Federal Regulations:Title 49 Vol 2: Transportation: Sec 173.2) and are not oxidisers as described by Sec 173.127: Class 5 Div 5.1 (Oxidiser) of those regulations.

15. Regulatory information

General:	Products are intended for medicinal use and sold in accordance with various national medicines regulations. They must be treated as medicines, with appropriate reference to instructions and literature. They are supported by medicinal Product Licences (PL 4286 / 0004 - 0006) issued by the UK Medicines and Healthcare products Regulatory Agency (MHRA).

16. Other information

General:	Refer to special notes in section 1.
Uses:	If used as in section 15 products are not considered dangerous and, without prejudice to the foregoing, no special handling or transport procedures are required.
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