

GL 285 – Gauzes a buying and using guide

Tripods are most often used as supports for gauzes so that containers such as glass beakers and evaporating basins etc can be heated from beneath using a Bunsen burner. Iron or stainless-steel gauzes can be purchased with or without ceramic centres.

Things to bear in mind before buying:

Ceramic centred or plain? Both types have their advantages and disadvantages see below for more info.

If you are replacing a full set of gauzes, then think about a phased replacement plan, you may not need a full set in every lab to start with.

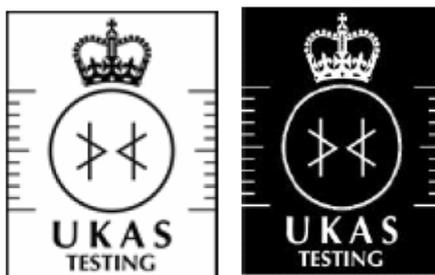
We have also produced guidance about how you can still heat water without gauzes of any type, read Practical Procedure PP0055 for more info.

Ceramic Centred Gauzes

These are very common in most school labs as the ceramic centre is very good at distributing the heat from the Bunsen burner flame more widely. This helps reduce the chances of damage to any items being heated.

When purchasing new gauzes, in order to avoid the chance of buying any which may be contaminated with Asbestos, you should check with the supplier that they have had regular samples tested by a UKAS (United Kingdom Accreditation Service) accredited testing house. They should be able to provide a test certificate, which should state that the testing was carried out in accordance with HSE HSG 248 '*Asbestos: The analysts' guide for sampling, analysis and clearance procedures.*'

Look for these symbols on the certificate, which should have a serial number underneath:



It would be good practice to keep a copy of the test certificate.

Do **not** solely rely on references to ISO 9001 (this standard isn't relevant to Asbestos), test certificates from different standards i.e. IANZ, verbal reassurances and/or letters or catalogues from suppliers as these have proven to be inaccurate.



Fig. 1

Using Gauzes: Over time the ceramic centre of any gauze will start to degrade and break apart. You can see in figure 1 above the most central gauze is clearly damaged and the one on the left is not far behind (circled in red). The risk from these is minimal if and we would recommend disposing of both of these gauzes. Disposal for these non asbestos containing gauzes would be by double bagging the gauzes and placing in non-recycling waste.

Gauzes which you suspect may contain Asbestos should be double bagged and collected by a Hazardous waste contractor. See other CLEAPSS guidance on this particular issue.

Regular checks should be made of gauzes to ensure only ones in good condition are used. Replace any which are showing signs of damage.

CLEAPSS is collating a list of suppliers which have proved that their current stock of gauzes have been tested by a UKAS accredited test company. Please refer to appendix A.

Non Ceramic Centred Gauzes

These have the advantage that there are no worries over potential contamination of the gauze with any Asbestos containing materials, as they are a purely metal item. This can make the purchasing route easier and fewer checks need to be made in this respect.

However there are some downsides to using plain gauzes as the role of the ceramic centre is to distribute the heat from the Bunsen burner flame.

- Without the ceramic centre you can get hot spots appearing, which can lead to cracked glassware.
- Under testing we found that some plain gauzes subjected to strong and direct heating caused the metal wire to soften and becoming oxidised at a fast rate. (Fig. 2)
- It can lead to discoloration of glassware especially when the yellow flame is used (which of course shouldn't be used for heating). (Fig. 3)

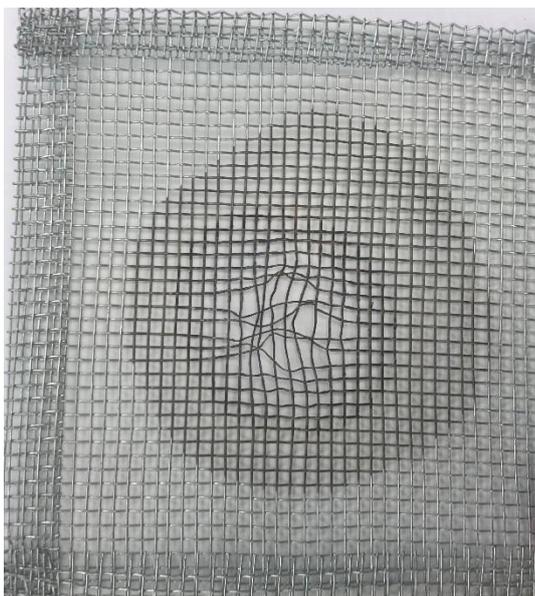


Fig. 2



Fig. 3

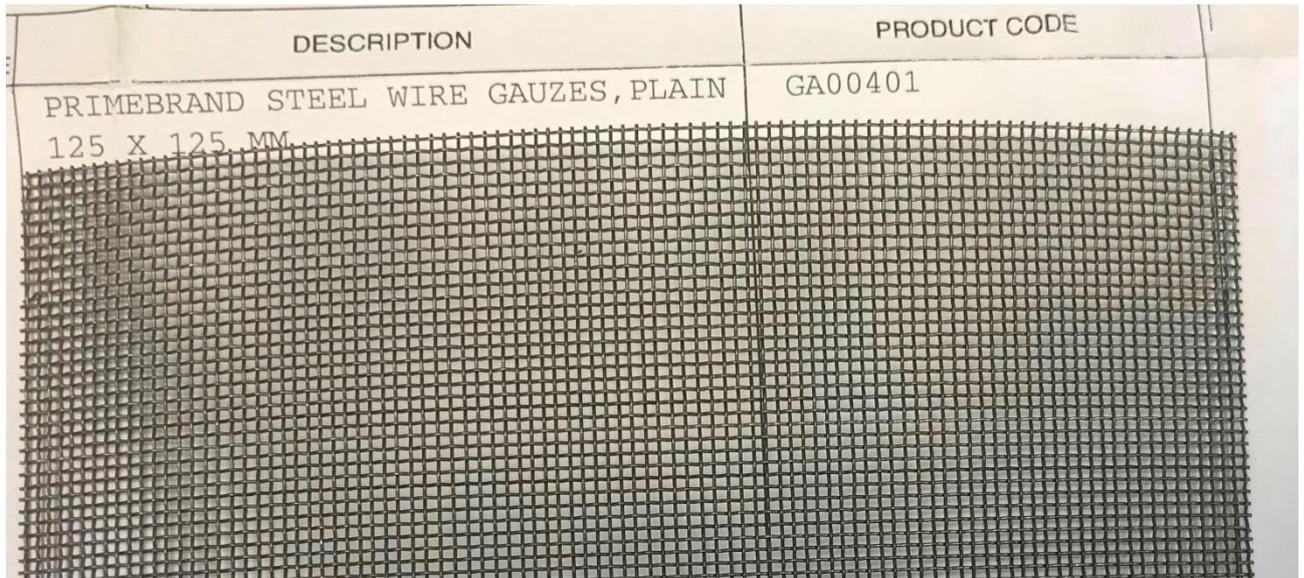
From our testing and experience we have come up with the below list of recommendations for the use of plain gauzes.

- CLEAPSS advises that **only** Borosilicate glass is used, Pyrex® is the most well-known trade name for Borosilicate glass but other brands such as SAMCO, Kimble & Schott etc are available.
- Never heat beakers, or other glassware to complete dryness (this shouldn't happen anyway). It will require close teacher supervision to ensure pupils don't allow this to happen.
- Check gauzes on a regular basis to ensure they are good condition.
- Only use strong or direct heating where strictly necessary, in many cases a slightly open air hole and reduced gas flow (achieved by half-closing the gas tap) will provide more than enough heat to continue the boiling of water or other liquids.

Most plain steel gauzes we tested only lasted a few minutes. However there were two types which from our testing outlasted the others we tested by quite a margin. These are:

- Any stainless steel gauze; stainless steel has a higher melting point compared to steel and is much more resistant to the effects of corrosion.
We used a #16 Mesh, which from our testing we found that there is a minimum wire diameter of 0.4mm. #16 Mesh with a wire diameter of 0.56mm will produce a stiffer gauze and is likely to be longer lasting, but it is more expensive.
You can buy the mesh from online mesh suppliers, and local metalwork companies. We recommend that you buy sheets of these, and then work with your D&T department. They can be cut to the required size, and then have the edges bent with a folding machine. This work could also be done by local metalwork companies.

- The below plain steel gauze was supplied by Beecroft & Partners, the current stock code is **GA00401**. However we know that stocks of these are likely to be limited.



Appendix A

Below is a list of companies and products which have proved to CLEAPSS that their **current** stocks of gauzes are free from asbestos, and have provided a UKAS test certificate.

Please note this list only applies to sales of **new** gauzes and only the specific products quoted, and must **NOT** be used to make judgements about stocks already held by schools.

Scientific & Chemical Supplies Ltd. (S&C - SciChem) – 4th September 2018

Product Number	Description
GAU020010	Ceramic Centred Gauze 125 x 125
GAU020020	Ceramic Centred Gauze 150 x 150
GAU060010	Ceramic Centred Gauze 13cm
GAU060020	Ceramic Centred Gauze 16cm

Better Equipped – 5th September 2018

Product Number	Description
0029	Wire Gauze Ceramic Centre 12.5Cm
9029	Wire Gauze Ceramic Centre 12.5Cm Pack Of 10
0030	Wire Gauze Ceramic Centre 15Cm
9030	Wire Gauze Ceramic Centre 15Cm Pack Of 10

Scientific Laboratory Supplies (SLS) – 5th September 2018

Product Number	Description
GAU1006	Gauze Ceramic Centre 150x150mm
GAU1004	Gauze Ceramic Centre 125x125mm

Timstar – 5th September 2018

Product Number	Description
GA08860	125mm x 125mm
GA08865	150mm x 150mm

Rapid Online (Rapid Education) – 6th September 2018

Product Number	Description
52-3323	Eisco Wire Gauze with Ceramic Centre 150 x 150mm
52-3328	Eisco Wire Gauze with Ceramic Centre 150 x 150mm Pack of 10
52-3327	Eisco Wire Gauze with Ceramic Centre 125 x 125mm Pack of 10