Sterilising Perfluorocarbons

F2 Chemicals Ltd does not have the facilities or quality procedures to sterilise the liquid perfluorocarbons during production.

Heat Sterilisation

All perfluorocarbons are stable at (and well above) typical autoclave sterilisation temperature (121°C or 270°F). However, heating any liquid in a sealed container will generate pressure, and may lead to the vessel exploding. This is more likely with liquids with a lower boiling point, so heat sterilisation of perfluorohexane (boiling point 58°C, generates an excess pressure of 6 bar) will require considerably more precautions than heat sterilisation of perfluorodecalin (boiling point 142°C, an excess pressure of 0.5 bar). In any case it is vitally important that a vapour space is allowed in the vessel to allow for liquid expansion (20% the volume of the liquid).

Radiation Sterilisation

Although perfluorocarbons are stable to radiation, a small amount of degradation can occur. While we believe that the amount of radiation used during the sterilisation process is insufficient to have a detrimental effect on the perfluorocarbon, F2 Chemicals Ltd is reluctant to recommend radiation sterilisation until this has been proven.

Filtration Sterilisation

Filtration sterilisation is ideal for sterilising gases and liquids, including perfluorocarbons. It is used at F2 Chemicals to sterilise perfluorocarbon gases. As well as sterilising, the process also removes pyrogens. A 0.2 micron filter is required.

Chemical Sterilisation

Perfluorocarbons should not be chemically sterilised (including sterilisation with ethylene oxide) due to the risk of traces of the sterilising agent remaining dissolved in the perfluorocarbons.

AKJ

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