

Extract From:

MINISTRY OF DEFENCE

JSP 319

Joint Service Safety Publication for the storage and Handling of Gases

Part 2: Guidance

Part 2 - Volume 1: Guidance - Gases General & Liquefied Petroleum Gas (LPG)

Leak Detection

39. Leak detection can be carried out using special equipment such as 'sniffers' or manometers. However, the simplest means of checking that an assembly is leak-proof is by coating the fittings with a surface active liquid after the system is pressurised. Any leak is revealed by the formation of a bubble which is seen to expand.

40. The gas-tightness of the fittings of an assembly is never to be checked by the application of a low flame to gaskets and fittings.

41. Only approved leak detection fluids shall be used on gas cylinders. The use of certain chemicals can affect the integrity of cylinders and/or valves. Ammonia in association with oxygen and water is very frequently responsible for stress corrosion cracking of copper based alloys such as brass, which are often used for manufacturing cylinder valves. Also, consideration should be given to the likely presence of halide ions (usually chloride). Though not necessarily harmful to steel or brass surfaces, they do cause significant damage to aluminium alloy cylinders in the form of pitting corrosion. Further, the progressive accumulation of residues often in the form of a thin film of fatty acids, especially in the valve outlet, can cause an ignition in an oxygen environment.

42. Users shall carry out suitable risk assessments, with supportive evidence from gas supply contractors and equipment / platform sponsors / support authorities as appropriate, on the choice of leak detection fluid, taking into account the following:

- a. Avoid using leak detection fluids which contain ammonia / ammonium radicals.
- b. Avoid using leak detection fluids that contain halide ions especially in conjunction with aluminium alloy cylinders.
- c. Select leak detection fluids having a residue with an auto-ignition temperature (as measured using an oxygen environment), which is compatible with the intended application.
- d. Carefully use the most diluted solution of a leak detection fluid consistent with the leak detection cycle.
- e. General detergents or soapy water solutions are not to be used for leak detection.

43. After the check has been completed ensure the area is dry by wiping with a clean lint free cloth.

Table 2.1.7.2 - Recommended Leak Detection Fluids

Description	Quantity	Support Authority	Part No.	NSN
Teepol™ HB7	5 L receptacles	DF&FS	11833457	71C/O443-6665-91335974
Teepol™ HB7 hand spray	500 ml receptacles	DF&FS	65220	

44. Teepol HB7 is provided ready for use (1% Teepol HB7 solution in distilled water) under the trade name Teepol Leak Detector.

45. Swagelok SNOOP® is **NOT** to be used as a leak detection fluid for use on gas cylinders and their fittings. Some receptacles have been found to contain ammonia