You have asked us to notify you of new safety alerts by registering at the OGP Safety Zone website. To remove yourself from the distribution list simply reply to this email and enter unregister in the subject or write to wendy.poore@ogp.org.uk.

OGP Safety Alert

TUBE COMPRESSION FITTING FAILURE

Country: AUSTRALIA - Asia/Australasia
Location: ---
Incident Date: ---  Time: ---
Type of Activity: ---
Type of Injury: ---
Function: ---

A recent near miss incident has identified that compression fittings associated with high pressure tubing lines have the potential to fail by working loose under certain conditions.

Potential failure will not be evident without adequate post-assembly inspection and may not become apparent for a number of years due to a range of factors including operating conditions and the material of the tube and fittings. Even during regular pressure testing, it is not uncommon for these ‘compromised’ fittings to pass the initial and subsequent tests prior to the main failure event.

In relation to this recent incident, subsequent inspections by the operator determined that approximately 50 per cent of similar fittings required attention as a result of:

- incorrect insertion depth with ferrules set at the end of the tube (see above photograph); or
- ferrules had worked loose over a period of time because of improper fitting assembly at installation followed by exposure to vibration or pressure pulsations.

Materials such as MP35N alloy, used for ferrules for some compression fittings, are of a very high yield and tensile strength. This quality however, can prevent the ferrule from "biting" into the parent tube material if insufficient pressure and torque is applied when assembling the fitting.

What Could Go Wrong?

Compression fitting ferrules exposed to vibration and pressure pulsations could work axially along the tube over period of time if incorrectly installed or the tube compression fittings are composed of incompatible materials.

This event can potentially lead to a loss of containment of high pressure flammable vapour or fluid and subsequently result in a dangerous occurrence or major accident event.
**Key Lessons**

A manufacturer of any plant has a general duty of care under the OPGGS Act 2006 to take all reasonably practicable steps to ensure the plant is designed and constructed to be safe and without risk to health. In addition, the manufacturer is responsible for carrying out the research, testing and examination necessary to identify, and eliminate or minimise, any risk to health and safety that may arise from the use of the plant.

Operators should carry out an audit of compression tube fittings and ensure that these fittings have been installed in accordance with the manufacturer’s recommendations and that the ferrules remain in the correct location.

Operators are to ensure installation and inspection competency in personnel including contractors and third parties undertaking the fitting and maintenance of compression fittings. This may include the implementation of a maintenance audit regime that routinely inspects compression fittings subjected to vibration and pressure pulsations, with comprehensive and complementary training and procedures.

Recommended guidelines are available in the Oil and Gas UK publication HS016 Management, Design, Installation and Maintenance of Small Bore Tubing System.

**Source Contact:**

This alert is being distributed via a partnership between the International Association of Oil and Gas Producers (http://www.ogp.org.uk/) and NOPSA (www.nopsa.gov.au).

For further information email alerts@nopsa.gov.au and quote Safety Alert 48

---

**Disclaimer**

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, neither the OGP nor any of its members past present or future warrants its accuracy or will, regardless of its or their negligence, assume liability for any foreseeable or unforeseeable use made thereof, which liability is hereby excluded. Consequently, such use is at the recipient’s own risk on the basis that any use by the recipient constitutes agreement to the terms of this disclaimer. The recipient is obliged to inform any subsequent recipient of such terms.

This document may provide guidance supplemental to the requirements of local legislation. Nothing herein, however, is intended to replace, amend, supersede or otherwise depart from such requirements. In the event of any conflict or contradiction between the provisions of this document and local legislation, applicable laws shall prevail.

---

London office: 209-215 Blackfriars Road, London SE1 8NL, UK
Tel: +44 (0)20 7633 0272 Fax: +44 (0)20 7633 2350 www.ogp.org.uk
Brussels Office: Bd de Souverain, 165 4th floor, B-1160 Brussels, Belgium
Tel: +32 (0) 02 566 9150 Fax: +32 566 9159