



BSI Standards Publication

**Fusion installations — Criteria for the
design and operation of confinement and
ventilation systems of tritium fusion facilities
and fusion fuel handling facilities**

National foreword

This British Standard is the UK implementation of EN ISO 16646:2025. It is identical to ISO 16646:2024.

The UK participation in its preparation was entrusted to Technical Committee NCE/2, Radiation protection and measurement.

A list of organizations represented on this committee can be obtained on request to its committee manager.

While the UK committee welcomes this publication, there are a number of points that should be noted by a UK user.

Care should be taken to consult applicable nuclear ventilation standards.

[Clause 4](#) of this standard needs careful application and consideration of hazards, with [Table 1](#) and [Figure 1](#) being used as examples and guidance only in the determination of the level(s) of protection for specific hazard and circumstances.

Elements of this standard are technology specific; this should not restrict suitable alternative technology application.

The UK committee emphasizes the importance of compatibility of materials and recommends users be aware of the issues around formation of acidic compounds, which can be detrimental to system integrity, as outlined in [Subclause 7.3.3](#) indicating that use of halogenated products should be avoided in areas with high tritium exposure.

The effect temperature and other environmental factors have on permeation rates should be considered in confinement design.

As rectification of issues are more easily achieved before contamination with tritium, it is advisable to do as much testing as possible in an inactive phase. This will also help to generally de-risk active commissioning.

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