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BSI Standards Publication

Safety of pressure swing adsorption systems for hydrogen separation and purification

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National foreword

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
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Foreword

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This document was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*.

Safety of pressure swing adsorption systems for hydrogen separation and purification

1 Scope

This document identifies safety measures and applicable design features that are used in the design, commissioning, and operation of pressure swing adsorption systems for hydrogen separation and purification. It applies to hydrogen pressure swing adsorption systems that process all kinds of impure hydrogen streams as feed, including both stationary and skid-mounted pressure swing adsorption systems for hydrogen separation and purification in commercial or industrial use. This document also applies to small-scale PSA hydrogen system installed within containers, where allowed by local regulations.

The scope of this document includes the equipment depicted within the dashed lines in Figure 1.

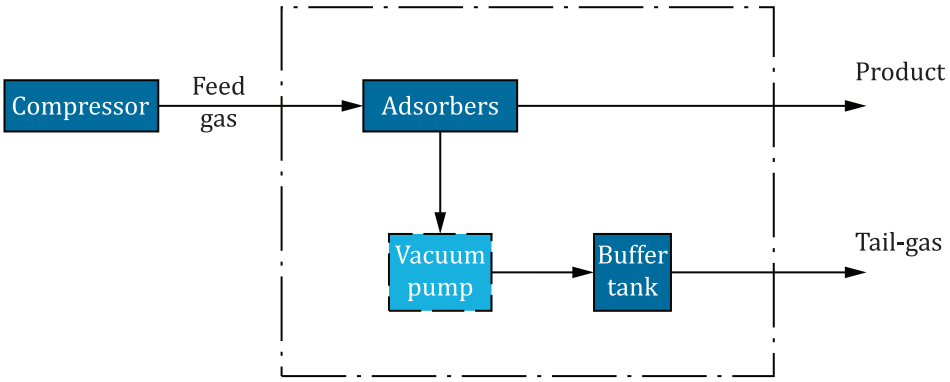

Figure 1 — Example of typical equipment in PSA system for hydrogen separation and purification

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4126-1, *Safety devices for protection against excessive pressure — Part 1: Safety valves*

ISO 11114-1, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 1: Metallic materials*

ISO 11114-2, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 2: Non-metallic materials*

ISO 11114-4, *Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents — Part 4: Test methods for selecting metallic materials resistant to hydrogen embrittlement*

IEC 60079-0, *Explosive atmospheres — Part 0: Equipment — General requirements*

IEC 60079-10-1, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres*

IEC 60079-14, *Explosive atmospheres — Part 14: Electrical installations design, selection and erection*

IEC 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*