

# Hydrogen gas: Set the standards for our future

**Certification and testing for the hydrogen energy sector**



# Hydrogen standards in the drive to net zero

Hydrogen is no longer a thing of the future and is now considered an important part of the global decarbonization drive, including the UK Governments 2050 NetZero target.

BSI offer hydrogen certification of gas components and appliances to help manufacturers ensure their products are safe for use with hydrogen, and to gain stakeholder confidence as the roll-out of sustainable energy products picks up pace.

Manufacturers and specifiers of gas components and appliances should consider the suitability of products now, in preparation for hydrogen injection into the gas network. Products approved for admixtures and hydrogen ready can be fitted now and remain in use.

As well as future-proofing products by ensuring suitability for use with hydrogen well ahead of NetZero, manufacturers can also gain access to a number of projects that are planned in the UK and globally.

Use with hydrogen gas can be added to the scope of BSI Kitemark certification for gas installation components, and GAR certification for gas appliances and relevant appliance controls.

## BSI Certification - Types

### Hydrogen gas installation components

The BSI Kitemark is recognised throughout the world as a mark of quality, ideal for gas distribution and gas supply components. Supply chain stakeholders all share the same requirement to reduce risk through the availability of independent third party certification. Kitemark provides the highest level of quality assurance, a prerequisite for gas installation components that must carry gas safely.

- **BSI Kitemark certification hydrogen add-on is available**
- **BSI PP1547 specification includes the requirements for gas components (NG, H2 and blends)**
- **Both gas distribution and gas supply components within scope**
- **From pipe systems to appliance connectors**
- **Evaluation and required limited testing can be carried out by BSI laboratories**



## Hydrogen gas appliances

UKCA and CE certification under UK and EU gas appliance regulations is mandatory for gas burning appliances (and for some integrated controls) placed onto the market in these regions. The scope of gas appliance regulations includes appliances that burn hydrogen gas. BSI are a UKCA approved body and CE notified body.



- **UKCA and CE GAR certification mandatory for hydrogen**
- **Future proof volume products for hydrogen admixtures or kit convert to 100% hydrogen (or both!)**
- **Dedicated 100% hydrogen appliances for projects and future districts**
- **BSI PP1670 specification includes the requirements for admixture appliances ( $\leq 20\%$  hydrogen)**
- **PAS 4444 standard includes the requirements for 100% hydrogen appliances**
- **BSI can manage the hydrogen testing**
- **Some appliance gas controls within GAR scope**

## BSI Certification - Benefits

- **Hydrogen gas products support decarbonisation**  
Hydrogen ready products add sustainability to your gas product portfolio
- **Opportunity for your organisation to be a hydrogen first mover**  
Use BSI certification to endorse your activity in this market sector
- **Roll out and get products fitted now to future proof**  
Hydrogen ready products installed now will futureproof installations for use with hydrogen
- **Get your projects specified on hydrogen pilot projects**  
BSI Kitemark and GAR certification provides access
- **Reduce risk and provide assurance with BSI certification**  
BSI provide independent third party certification

BSI and the UK have taken a lead in developing specifications for gas installation components and appliances for use with hydrogen gas. BSI PP1547 (components for hydrogen), BSI PP1670 (appliances for admixtures) and PAS 4444 (appliances for 100% hydrogen) are some of the first publicly available specifications covering hydrogen.

# BSI Certification - Options

Fit on the natural gas network now and future proof, or for hydrogen projects...

## Gas components

**Universal:** Typically 100% natural gas, 100% hydrogen gas and all admixtures and blends  
Certification: BSI Kitemark for installation components / UKCA / CE GAR for some appliance controls  
Standard: PP1547: 2022 Control Devices and Ancillaries for Hydrogen

## Gas appliances

**H<sub>2</sub> admixtures:** 100% natural gas and up to 20% hydrogen added without conversion  
Certification: BSI UKCA / CE GAR  
Standard: PP1670: 2022 Certification of appliances burning admixtures of methane and hydrogen  
**H<sub>2</sub> ready:** 100% natural gas convertible to 100% hydrogen gas (ie >98% hydrogen gas)  
Certification: BSI UKCA / CE GAR  
Standard: PAS 4444: 2020+A1:2021 Hydrogen-fired gas appliances  
**Or both (2in1):** The very same appliance both suitable for hydrogen admixtures and hydrogen ready!

**For 100% hydrogen projects and future 100% hydrogen districts only...**

100% hydrogen only appliance option is also available: >98% hydrogen gas (PAS 4444 / GAR)

## Why BSI?

At BSI we create excellence by driving the success of our clients through standards. We help organizations to embed resilience, helping them to grow sustainably, adapt to change, and prosper for the long term. We make excellence a habit.

For over a century, our experts have been challenging mediocrity and complacency to help embed excellence into the way people and products work. We have implemented a built environment sector team of auditors, each with experience within the sector to

ensure you receive comprehensive and value-added audits.

With 80,000 clients in 182 countries, BSI is an organization whose standards inspire excellence across the globe.

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