

## Activity Report 2018 Gas Technical Standards Committee



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## Minister's Foreword



As the Minister responsible for energy, I greatly value the work of the National Standards Authority of Ireland's Gas Technical Standards Committee. I would like to thank the Committee for the vital work they do to ensure that gas standards are up to date and fit for purpose. Vigilance in undertaking this work will become ever more important in the years ahead as we step up investment in the decarbonisation of our energy uses. I wish the Committee well in continuing its good work throughout 2019 and beyond. This work is essential in ensuring a safe and reliable supply of energy in homes, businesses, schools and hospitals where gas is used, or in power generation using electricity generated from gas.

You will see in this report the vast range of work that was undertaken by the Gas Technical Standards Committee during 2018, both in the area of domestic standards and in contributions made to international standards. I am confident that it will continue to deliver on the high standards it has set itself into the future, ensuring that public health and safety are protected to the highest possible standard.

I would also like to thank Bob Hanna, the former Chief Technical Advisor to my Department, for his valuable contribution to the Committee during his tenure and extend him my best wishes in his retirement.

**Richard Bruton, TD** *Minister of Communications, Climate Action and Environment* 

## **CEO** Statement



2018 was yet another busy and productive year for the Gas Technical Standards Committee (GTSC) with the members involved producing indigenous Irish standards and reviewing and commenting on European and International standards. Although the GTSC regretfully saw several members retire from the committee, even more members were welcomed across the various GTSC committees.

GTSC TC 2 "Installation and Appliances", continued extensive work on the revision of I.S. 820, *Non-domestic gas installations*, which was launched for public enquiry in April 2018. This revision is in view of the upcoming Non-domestic Registered Gas Installer (RGI) scheme where it will be a legal requirement for all those carrying out non-domestic gas works to be registered.

GTSC TC 8 "LPG storage, LPG refuelling facilities and LPG cylinder filling" also continued working on in the revision of I.S. 3213, Code of practice for the storage of LPG cylinders and cartridges and GTSC TC 5 "Transmission" continued working on the revision of I.S. 328-1, Gas transmission pipeline and I.S. 328-2, Gas transmission pipeline installations.

I wish to extend my thanks to the members of the GTSC and, through the GTSC, to all the technical experts who contribute to the individual committees for their continued commitment to, and participation in, the development of gas installation and infrastructure standards in Ireland, Europe and Internationally.

Participation is voluntary and many members contribute long hours in order to develop, revise and amend indigenous and European Standards that support Industry, the regulatory framework, and ultimately the gas consumer. I would also like to thank on behalf of members and experts, Alice Hanly, Secretary of the GTSC who has continued supporting the successful operations of this committee.

**Geraldine Larkin** *Chief Executive Officer, NSAI* 

## **Chairman's Statement**



Once again it is my pleasure to provide the GTSC chairman's statement and to thank those involved in the provision of gas standards.

Throughout the year the various committees have been actively involved in the production and revision of Irish standards. This Activity Summary Report is testament to the wide range of subject matters addressed by the committees.

Reflecting the importance of European Standards in the industry, committee members and NSAI secretariat were actively involved in the review and production of CEN European Standards. ISO International Standards were also reviewed and voted on by NSAI.

As Chairman I would like to thank all those involved in the technical committees, the NSAI for their support given to the committees, and in particular, Alice Hanly for her contribution to the efficient and effective operation of the committees throughout the year.

I acknowledge also the continued support of Gas Networks Ireland, Irish Liquid Petroleum Gas Association and the Department of Communications, Climate Action and Environment.

"The old order changeth yielding place to new."

As this is my last Activity Report I would like to take this opportunity to thank all those who served on the GTSC-CC throughout my 8 year tenure. 2018 also sees the retirement of the Deputy Chairman, Bob Hanna. I wish him all the best for the future and thank him for his long service to the Gas Industry.

I look forward to the continued development of standards for the gas industry and further improvement in safety for workers and consumers.

Liam Hearne GTSC Chairman

## 1. Introduction

NSAI develops and publishes standards to meet international demands for the quality, design, performance, safety and environmental impact of products and services. The use of these standards ensures that products are designed and manufactured in line with recognised best practice, and services are managed in a streamline manner.

The GTSC continued, in 2018, to contribute in the development of standards for the gas sector, having particular regard to the safety of gas users and those working within the industry.

2018 was a busy year for all the GTSC committees with 37 national meetings held, over 40 Irish, European and International standards reviewed, as well as the drafting of 3 national standards.

The GTSC welcomed six new members to the various committees and regretfully saw the resignation of two long standing members of the GTSC.

2018 saw the public enquiry of I.S. 820, Non-domestic gas installations.

Work also continued in the revision of two standards, I.S. 3213, Code of Practice for the storage of LPG cylinders and cartridges, produced by TC 8 and I.S. 328-1 and 2, Gas transmission pipelines and pipeline installations produced by TC 5.

Internationally Ireland continued to provide the Secretariat for CEN TC 286 – *LPG equipment and accessories*. The NSAI provided secretarial support for 3 working groups and was responsible for convening the TC editing committee. GTSC members also continued to represent Ireland on CEN TC plenary committees and working groups.

- ► To advise the NSAI with regard to Irish Standards and Codes of Practice necessary for the transmission, distribution and utilisation of Natural Gas and LP gas, with particular regard to safety and to make recommendations as required;
- To draft appropriate documentation including Standards, Codes of Practice, Amendments and Safety Recommendations as necessary;
- To ensure that interested parties are consulted in the drafting of these Standards and Codes of Practice;
- ► To liaise with similar bodies in other EU countries and in particular CEN (European Committee for Standardisation) and ISO (International Organisation for Standardisation); and
- To advise NSAI on how to vote on draft European and International Standards.

## 3. Structure and Membership

#### 3.1 Structure

The Figure below illustrates the structure of the Committee:



#### 3.2 Members

The list below are the members for the year:

#### **The GTSC Committees**

The members of the GTSC participate on the committees as voluntary experts representing their associations and companies.

#### **Central Committee (CC)**

The Central Committee overseas the activities of each Technical Committee.

The Central Committee convened 3 Plenary Meetings in 2018

Mr. Liam Hearne, Chairman (outgoing)	Mr. James Burchill, GTSC TC 1 Chairman
Representing Gas Networks Ireland	Gas Networks Ireland
Ms. Alice Hanly, Technical Secretary	<b>Mr. Liam Doyle</b> , GTSC TC 2 Chairman
NSAI	ILPGA
<b>Mr. Bob Hanna</b> (outgoing) Department of Communications, Climate Action and Environment	<b>Mr. PJ. Rudden</b> , GTSC TC 5 Chairman RPS Group Ltd
<b>Mr. Phillip Connolly,</b> Department of Communications, Climate Action and Environment	Mr. Emmet Cregan, GTSC TC6 Chairman Gas Networks Ireland
<b>Mr. Liam Nolan</b>	Mr. Gareth Doran, GTSC TC 8 Chairman
Gas Networks Ireland	(Incoming) Calor gas
<b>Ms. Alice Doherty</b>	<b>Mr. Paul O'Connell</b> , GTSC TC 9 Chairman
Health and Safety Authority	Flogas Ireland Ltd
<b>Mr. Chris Barry</b>	Note:
Department of Housing,	There is an open invitation for all Chairmen of the
Planning and Local Government	TC's to attend the CC.

### Structure and Membership (continued)

#### **TC1 – Distribution**

Mr.	James	Burchill,	Chairman
Gas	Netwo	orks Irela	nd

Ms. Alice Hanly, Technical Secretary NSAI

Mr. Liam Doyle ILPGA

Mr. Michael Downey Jacobs Engineering

Mr. Mark O'Reilly Gas Networks Ireland

Mr. Dermot Killeen Calor Gas

Mr. Rory Somers Gas Networks Ireland

Mr. Aidan Toher Gas Networks Ireland Mr. Conor Manning **Quality Plastics Ltd** 

Mr. Michael Crowley Gas Networks Ireland

Mr. Gearoid Hayes Gas Networks Ireland

Mr. Michael Gill Pipe life

Mr. Kevin Murphy Gas Networks Ireland

Mr. Shane Geraghty (Incoming) Gas Networks Ireland

Mr. James Garvey (Incoming) Gas Networks Ireland

Mr. Ray Coey (Incoming) Commission for Regulation of Utilities (CRU)

#### **TC2** – Installation and Appliances

<b>Mr. Liam Doyle</b> , Chairman	Mr. Ed McDonnell
ILPGA	RGII
<b>Ms. Alice Hanly,</b> Technical Secretary	<b>Mr. Pat O'Shaughnessy</b>
NSAI	Heating Contractor
<b>Mr. Paul Cleary</b>	Mr. Sean Smith
Gas Networks Ireland	Department of Business, Enterprise and Innovation
<b>Mr. Kevin Collins</b>	<b>Mr. Sean McGinley</b>
Consultant	RGII
Mr. Ciaran Costelloe	<b>Mr. Tony Gordon</b>
Flogas Ireland Ltd	Bord Gáis Energy
<b>Mr. Barry Grouse</b>	Mr. Chris Ahearne
Gas Networks Ireland	Installer Review Panel (IRP)
Mr. Dermot Killeen	<b>Mr. William Byrne</b>
Calor Gas	Glen Dimplex
Mr. Alan Duke	Mr. Darragh Jordan (Incoming)

Mr. Keith Walsh (Incoming) Commission for Regulation of Utilities (CRU)

### Structure and Membership (continued)

#### TC5 – Transmission

TC5 draws up national standards in the area dealing with the design, construction and operation of transmission pipelines and installations from 16 bar upwards. The Technical Committee held 4 meetings in 2018.

Mr. PJ Rudden, Chairman RPS Group Ltd

Ms. Alice Hanly, Technical Secretary NSAI

Mr. Conor Ahern Gas Networks Ireland

Mr. Declan Burke Gas Networks Ireland

Mr. Bob Hanna (Outgoing) Department of Communications, Climate Action and Environment

Mr. Gary Senior (Incoming) Representative of GNI Mr. Liam Murphy Gas Networks Ireland

Mr. Kevin Murphy Gas Networks Ireland

Mr. Mike Cahill Gas Networks Ireland

Mr. Peter Clarke Consultant

Mr. Liam Hearne Representing Gas Networks Ireland

Mr. Barry Donnelly (Incoming) Commission for Regulation of Utilities (CRU)

#### TC 6 – Use of CNG in Vehicles

TC 6 reviews European and international standards linked with CNG Vehicles and CNG refuelling stations.

The Technical Committee held 4 meetings in 2018

Mr. Emmet Cregan, Chairman Gas Networks Ireland Ms. Alice Hanly, Technical Secretary NSAI Mr. Gordon Bryan Bus Eireann Mr. David Whelan

Fire Safety Officer with Meath County Council

**Mr. Thomas Daly** Fire Officer with Dublin City Council

Mr. Paul Cooper Gas Networks Ireland

Mr. Seamus Fearon (Incoming) Circle K

Mr. Liam Nolan Gas Networks Ireland

### TC 8 – Liquid petroleum gas (LPG) Storage, LPG refuelling stations and LPG cylinder filling

TC 8 draws up national standards in the area dealing with bulk storage of LPG and storage of LPG cylinders and cartridges.

The Technical Committee held 4 meetings in 2018

**Mr. Gareth Doran**, Chairman Calor Gas

Ms. Alice Hanly, Technical Secretary NSAI

Mr. Ciaran Costelloe Flogas Ireland Ltd

Mr. Liam Doyle

Mr. Michael Kelleher Chief Fire Officers Association

Mr. Dermot Killeen Calor Gas

Mr. Tim Richardson Calor Gas

Ms. Ita Daly Health and Safety Authority

### Structure and Membership (continued)

#### TC 9 – LPG equipment and accessories

This committee monitors Irish participation in the pressure vessel and the Transport or Dangerous Goods area at CEN (particularly CEN/TC 286) and ISO meetings. The Technical Committee held 6 meetings in 2018.

Mr. Paul O'Connell, Chairman Flogas Ireland Ltd

Ms. Alice Hanly, Technical Secretary NSAI **Mr. Steve McGarry** Health and Safety Authority

Mr. Sean McCourt Calor Gas

Mr. Tim Richardson Calor Gas Mr. Dermot Kileen Calor Gas

#### New and retired members

The GTSC welcomes the following new members to the Committee:

Mr. Shane Geraghty - Gas Networks Ireland

Mr. James Garvey – Active Energy Control Ltd.

Mr. Darragh Jordan – Flogas Ireland Ltd.

Mr. Gary Senior - Representative of Gas Networks Ireland

Mr. Seamus Fearon – Circle K Ireland

Mr. Keith Walsh - Commission for Regulation of Utilities (CRU)

The following members changed their status from observers to full members of the Committee:

Mr. Ray Coey - Commission for Regulation of Utilities (CRU)

Mr. Barry Donnelly - Commission for Regulation of Utilities (CRU)

The GTSC acknowledges the following departing members and wishes them the very best in their future and thanks them for their years of input into the GTSC and its technical committees:

Mr. Bob Hanna - Department of Communications, Climate Action and Environment

Mr. Liam Hearne - Formerly Gas Networks Ireland

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## 4. Summary of 2018 Activities

#### 4.1 National Work

#### 4.1.1 National Standards

#### The following work was started or continued on indigenous standards during 2018.

#### I.S. 820 – Revision – Edition 3

In support of the extension of the registered gas installer scheme, GTSC TC 2 continued developing the revision of I.S. 820 Edition 3. Public Enquiry was launched in April 2018 for a six-week period. GTSC TC 2 met on a regular basis where a lot of work was put into addressing all comments received and the final document was agreed at the end of the year for publication in 2019.

NSAI and the GTSC would like to thank the public for the 153 comments submitted, which contributed to the production of an improved standard, reflecting best practice in the area of non-domestic gas installations.



#### GTSC TC 2 working on comments received during I.S. 820 public enquiry Left to right: Kevin Collins, Barry Grouse, Ciaran Costello, Alice Hanly (Secretary), Liam Doyle (Chairman), Dermot Killeen, Ed Mc Donnell, Darragh Jordan, Sean Mc Guinley, Alan Duke

#### I.S. 3213 – Revision – Edition 2

GTSC TC 8 continued working on the revision of I.S. 3213. This document is intended to be launched for public enquiry in 2019.

#### I.S. 328-1 and 2 – Revision

GTSC TC 5 continued working on the revision of I.S. 328-1 and 2. This document is intended to be launched for public enquiry in 2019.

#### 4.1.2 Standout moments of 2018

#### **NSAI Standards Forum 2018**

NSAI had their 3<sup>rd</sup> Standards Forum on the 16<sup>th</sup> October 2018. This Forum included presentations on the topic of "International standards and the fourth industrial revolution" and also an awards ceremony (1997 Awards) for committee members who have made a significant contribution to standards development work in Ireland and internationally.

This year, Bob Hanna, DCCAE, was one of the recipients of the 1997 Awards in appreciation of all his hard work and commitment to standards development, in particular within the Gas Technical Standards Committee.





From left to right: Geraldine Larkin, CEO of NSAI, Bob Hanna, Chief Technical Advisor (DCCAE)

From left to right: Alice Hanly, Secretary of GTSC, (NSAI), Bob Hanna, Chief Technical Advisor (DCCAE)

Bob Hanna served 14 years supporting national standardisation representing the Department of Communications, Climate Action and Environment before retiring this year, 2018. As Chief Technical Advisor to the Minister, Bob represented Ireland in a number of international fora, including the E.U.'s Strategic Energy Technology Plan Steering Group.

During his time supporting standardisation, Bob was hugely involved in the areas of Gas, Electrotechnology and Energy Efficient Design Management, notably:

- TC 001 Gas Technical Standards Committee (GTSC), as Deputy Chair of the Central Committee and it's sub-committee, TC 5 – Gas Transmission;
- Electrotechnical work with ETCI; and
- I.S. 399 Energy Efficient Design Management, which was later implemented as a European and then International standard.

Bob Hanna continuously provided great input and support to various committees in raising the levels of safety awareness and good practice.

The GTSC and NSAI are particularly grateful to Bob Hanna for his efforts and influence on preserving the existence of the Committee during the difficult times of the last recession.

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#### Departure of the GTSC Chairman

The NSAI and the GTSC would like to pay tribute to the outgoing Chairman Liam Hearne. Liam Hearne first joined the Gas Standards Technical Committee (GTSC) in 2000 and participated in TC 5, the technical committee responsible for development of Transmission standards, where he worked his way up and took the position of Deputy Chair of the Central Committee in 2007 and was subsequently appointed as Chairman of the Central Committee in 2010. During his time as chair, Liam provided stewardship in the development of standards to industry best practice. Liam also represented the NSAI internationally. Liam brought a wealth of experience from his days in the gas industry where Liam served for more than 26 years.



From left to right: Liam Hearne, departing Chairman of GTSC Central Committee, Alice Hanly, GTSC Secretary (NSAI)

Liam joined Gas Networks Ireland (formerly Bord Gáis Eireann) in the 1980's where he was instrumental in the delivery of major infrastructure projects such as the gas pipeline from Cork to Dublin and the Irish subsea gas interconnectors to the United Kingdom and many other key projects, during Liam's tenure as Head of the Transmission Design Department. In the latter part of his career, Liam was appointed to a Senior Management position to Gaslink, the gas Transmission System Operator and Distribution System Operator in Ireland.

On retirement in 2012, Liam generously continued giving his time as chair to the GTSC. Liam stepped down as GTSC Central Committee's Chairman at the end of 2018, with his last meeting in November.

We would like to express our thanks to Liam and wish him all the best for the future.

#### 4.1.3 Issues addressed by the GTSC Technical Committees:

In addition to addressing the review and revision of draft standards, the Technical Committees of the GTSC also addressed a number of issues with regard to safety with support from standardisation to establish a position by consensus.

#### Carbon Monoxide

During the drafting of I.S. 820 Edition 3, discussions were had regarding non-domestic CO detection. It was considered that the topic of non-domestic CO detection required further consideration and therefore more appropriate to address the topic in a separate format. It was agreed to establish a new project group dedicated to address non-domestic carbon monoxide detection. This group will be established after the publication of I.S. 820 in 2019.

#### **RAPEX** notifications

The GTSC secretary continued to review the weekly RAPEX notifications in an effort to identify any products to be notified to GTSC TC 2 and the CC. In 2018, 11 Rapex notifications were raised for gas and CO related products including CNG vehicles.

All CO alarm notifications are notified to Gas Networks Ireland who are responsible for maintaining the www.carbonmonoxide.ie website. The website gives guidance on CO alarms and also lists CO alarms that have been withdrawn for sale or recalled by the manufacturer.

Where appropriate GTSC TC 2 also directed the RGII to notify RGI's of potential risks with products.

Product Type	Rapex notifications 2018
Carbon monoxide detector	2
CNG Vehicle	5
Kerosene Heater	1
Portable Gas Stove	1
Pressure Cooker	2

#### 4.2 International Work

#### 4.2.1 International Meeting Attendance

GTSC members closely monitored and attended to the following CEN and ISO Technical Committees in 2018. These delegates reported back to the appropriate GTSC committees. The members attended the Plenary meetings as Irish Delegates representing the Irish position and voted accordingly. The members attended the Working Group meetings as Experts and represented the position of the GTSC and their company in the drafting of standards.

#### 4.2.1.1 CEN Technical Committees

#### CEN/TC 49 – Gas cooking appliances

This committee is responsible for the domestic cooking appliances burning gas standards in Europe EN 30 series which are harmonised to the Gas Appliance Directive.

Mr. Liam Doyle, ILPGA

#### CEN/TC 237 – Gas meters

This committee deals with the requirements for the construction, performance and safety of gas meters, including diaphragm, rotary displacement, turbine, ultrasonic domestic gas meters, and all associated conversion devices.

The TC is currently focusing on the impact of Hydrogen on gas meters.

Mr. Michael Crowley, Gas Networks Ireland

#### CEN/TC 326 – Natural Gas Vehicles – Fuelling and Operation

This committee is responsible for standards for the design, construction, operation, inspection, safety and maintenance of fuelling stations and facilities for natural gas vehicles (NGV's). It includes natural gas and biomethane in compressed (CNG) or liquefied (LNG) form and covers the operational aspects of NGV's during their life cycle.

Plenary – Mr. Emmet Cregan, Gas Networks Ireland

WG 6 - Mr. Paul Cooper, Gas Networks Ireland

### CEN/TC 408 – Natural Gas and biomethane for use in transport and biomethane for injection in the natural gas grid

This committee is responsible for specifications for natural gas and biomethane as vehicle fuel and of biomethane for injection in the natural gas grid, including any necessary related methods of analysis and testing. Production process, source and the origin of the source are excluded.

Mr. Emmet Cregan, Gas Networks Ireland

#### CEN/TC 234 – Gas infrastructure

The TC is responsible for standards produced for natural gas and biogas infrastructures from the gas terminal to the point of delivery.

The TC is currently focusing on the impact of Hydrogen on gas infrastructure.

Mr. R. Somers, Gas Networks Ireland

Ms. A. Hanly, NSAI

The Working Groups tasked with developing the European Standards within CEN/TC 234 are represented by the following:

WG 1 – Gas Installations	WG 6 – Gas pressure regulation	
Mr. D. Hughes, Gas Networks Ireland	Mr. B. McDermott, Gas Networks Ireland	
WG 2 – Distribution	WG 7 – Gas compression	
Mr. D. Burke, Gas Networks Ireland	Mr. M. Durcan, Gas Networks Ireland	
Mr. D. Hughes, Gas Networks Ireland	WG 8 – Industrial Piping	
Mr. J. Burchill, Gas Networks Ireland	Mr. R. Somers, Gas Networks Ireland	
WG 3 – Transmission	Mr. Ciaran Costelloe, Flogas	
Mr. P. Lennon, Gas Networks Ireland	WG 10 – Service Lines	
Mr. D. Hughes, Gas Networks Ireland	Mr. D. Hughes, Gas Networks Ireland, (Convenor)	
WG 4 – Gas underground storage	Mr. A. Toher, Gas Networks Ireland	
Mr. D. Hughes, Gas Networks Ireland	Mr. D. Burke, Gas Networks Ireland	
WG 5 – Gas measuring	Ms. A. Hanly, NSAI (Supporting Secretary)	
Mr. M. Crowley, Gas Networks Ireland		

#### **CEN Sector Forum Gas**

The Sector Forum Gas gives direction to the CEN Technical Committees in the specific gas sectors and makes recommendations proposed by the Member States that are in turn addressed by the Technical Committees. This sector forum is represented by the following:

SFG – Infrastructure

Mr. R. Somers, Gas Networks Ireland Ms. A. Hanly, NSAI

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#### CEN/TC 286 – LPG equipment and accessories

This TC is responsible for producing standards for the design, manufacture and operational maintenance of LPG pressure vessels, cylinders and associated valves. The Secretariat of CEN/ TC 286 is held by NSAI, with Alice Hanly as the Secretary. The Working Groups are represented by the following:

NG 1 – LPG pressure vessels	WG 8 – LPG pipework	
Иr. S. McCourt, Calor Gas	Ms A. Hanly, NSAI (Secretary)	
NG 2 – Valves	WG 9 – LPG propulsion systems for recreational	
Mr. P. O'Connell, Flogas Ireland Ltd (Convenor)	craft	
vs A. Hanly, NSAI (Secretary)	Ms A. Hanly, NSAI (Secretary)	
NG 5 – Road Tankers	WG 10 – Environment	
Mr. P. O'Connell, Elogas Ireland Ltd	Mr. P. O'Connell, Flogas Ireland Ltd.	
Mr. T. Richardson, Calor Gas	Ms A. Hanly, NSAI (Secretary)	
NG 6 - Automotive Systems	WG 11 – Terminology	
NG 7 – Operation of cylinders and tanks	Ms A. Hanly, NSAI (Secretary)	
Mr. P. O'Connell, Flogas Ireland Ltd.	Mr. P. O'Connell, Flogas Ireland Ltd	
Mr. T. Richardson, Calor Gas		

#### 4.2.1.2 ISO Technical Committees

#### ISO TC 58 SC 2 Cylinder fittings

This committee is a sub-committee of TC 58 – Gas cylinders, which is responsible for the standardization of gas cylinders and other pressure receptacles, their fittings and requirements relating to their manufacture and use. The plenary meeting is represented by Irish delegate, Paul O'Connell, Convenor of ISO/TC 58/SC 2/WG 12 *Cylinder fittings*.

#### ISO TC 58 SC 2 WG 12 Cylinder fittings

The WG is responsible for producing standards for LPG cylinder valves. This WG has an agreement with CEN/TC 286 to develop ISO 15995, *Gas cylinders – Specifications and testing of LPG cylinder valves – Manually operated* and ISO 14245 *Gas cylinders – Specifications and testing of LPG cylinder valves – Self-closing* in parallel with the development of EN ISO 15995, EN ISO 14245. The revision of these two standards continued in 2018, with publication intended for 2019.



Left to right: Stephan Aris, Marko Szypkowski, Hans-Werner Barth, Olivier Aubertin, Peter Roberts, Alice Hanly (Secretary support), Paul O'Connell (Convenor), Joao Ferreira, Orlando Negrete Filho, Alessandro Modena, Yunyongchai Tanadumrongsak.

#### 4.2.2 International Standards GTSC Review Process

Each of the GTSC Technical Committees has the opportunity to review and submit technical comments on draft Standards circulated for enquiry by CEN and ISO. The comments submitted by each of the Member States are considered by Working Groups developing the Standard and the text of the Standard may be changed on foot of these comments. The final input into the development of the Standard is the Formal Vote stage (FDIS for ISO Standards) whereby the national committees review the Formal Vote draft and vote in favour or against the Standard and also submit editorial comments. The Standard is published following a positive Formal Vote by the Member States.

Ireland also monitored the followi	ng CEN committees in 2018
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CEN/TC 109 – Central heating boilers using gaseous fuels	CEN TC 218 – Rubber and plastics hoses and hose assemblies	
Ms. Alice Hanly, NSAI	Ms. A. Hanly, NSAI	
CEN TC 106 – Large kitchen appliances	CEN TC 23 – Transportable gas cylinders	
using gaseous rueis	Ms. A. Hanly, NSAI	
Ms. A. Hanly, NSAI	<i>"</i>	
CEN/TC 155 – Plastics piping systems and ducting systems	CEN IC 235 – Gas pressure regulators and associated safety devices for use in gas transmission and distribution	
Mr. T. Hegarty, Gas Networks Ireland	Ms. A. Hanly, NSAI	
CEN TC 131 – Gas burners using fans	CEN TC 236 – Non industrial manually	
Ms. A. Hanly, NSAI	operated shut-off valves for gas and particular combinations valves-other products	
CEN TC 156 – Ventilation for buildings	Ms. A. Hanly, NSAI	
Ms. A. Hanly, NSAI	CEN TC 238 – Test gases, test pressures, appliance	
CEN TC 180 – Decentralized gas heating	categories and gas appliance types	
Ms. A. Hanly, NSAI	Ms. A. Hanly, NSAI	

### CEN TC 181 – Dedicated liquefied petroleum gas appliances

Ms. A. Hanly, NSAI

CEN TC 19 – Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin.

Ms. A. Hanly, NSAI

CEN TC 282 - Installation and equipment for LNG

Ms. A. Hanly, NSAI

CEN TC 296 – Tanks for the transport of dangerous goods

Ms. A. Hanly, NSAI

CEN TC 299 – Gas-fired sorption appliances, indirect fired sorption appliances, gas-fired endothermic engine heat pumps and domestic gas-fired washing and drying appliances.

Ms. A. Hanly, NSAI

CEN TC 305 – Potentially explosive atmospheres – Explosion prevention and protection

Ms. A. Hanly, NSAI

#### CEN TC 267 – Industrial piping and pipelines

Ms. A. Hanly, NSAI

CEN TC 399 – Project Committee – Gas Turbines applications – Safety

Ms. A. Hanly, NSAI

CEN TC 54 - Unfired pressure vessels

Ms. A. Hanly,

CEN TC 58 – Safety and control devices for burners and appliances burning gaseous or liquid fuels

Ms. A. Hanly,

CEN TC 62 - Independent gas-fired space heaters

Ms. A. Hanly, NSAI

**CENELEC/TC 216 – Gas detectors** 

Ms. Alice Hanly, NSAI (WG 9 Secretary)

ISO/PC 252 – Project committee: Natural gas fuelling stations for vehicles

Mr. J. Burchill, Gas Networks Ireland

#### Ireland monitored the following ISO committees in 2018

#### ISO/TC 58 – Gas cylinders

#### Ms. A. Hanly, NSAI

ISO/TC 58/SC 2/WG 12 – Cylinder fittings

Mr. Paul O'Connell, Flogas Ireland Ltd (Convenor)

Ms. A. Hanly, NSAI (Secretary)

ISO/TC 67/SC 2 – Pipe line transportation systems

- Mr. L. Hearne, outgoing
- Ms. A. Hanly, NSAI

ISO/TC 138 – Plastics pipes, fittings and valves for the transport of fluids

Ms. A. Hanly, NSAI

ISO/TC 185 – Safety devices for protection against excessive pressure

Ms. A. Hanly, NSAI

ISO/TC 193 – Natural gas

Ms. A. Hanly, NSAI

## 5. First Steps towards Decarbonising Gas in Ireland

#### Note by Liam Nolan, Incoming GTSC Chairman

Climate change is one of our greatest and most urgent global challenges. Global warming is having far reaching and profound impacts on communities, human health and the world's climate. All sectors of Irish society have a role in meeting these challenges and the gas industry is no exception. In 2018 we saw a number of important steps towards the decarbonisation of gas in Ireland.



#### **Compressed Natural Gas (CNG)**

During 2018, Gas Networks Ireland commissioned Ireland's first publicly accessible high capacity fast fill Compressed Natural Gas (CNG) station, located at the Circle K Service Station in Dublin Port. The overall plan for a national network of 70 Compressed Natural Gas refuelling stations, both public and private, will have a significant impact on carbon emissions from the transportation sector.

#### **Renewable Gas**

Gas Networks Ireland was also shortlisted in 2018 and later was granted funding from the Department of Communications, Climate Action and Environment's Climate Action Fund for its GRAZE gas project. This project will deliver the first transmission connected Central Grid Injection facility for renewable gas. The facility, to be located in Mitchelstown, Co. Cork, will have the capacity to support up to 20 farm-based Anaerobic Digestion (AD) biomethane plants within a 50 km radius. Once operational, Renewable Gas will be sourced from local farms and will provide enough energy to heat up to 54,000 homes.

Renewable Gas (biomethane) is expected to be injected into Ireland's gas network for the first time in 2019. The Renewable Gas will enter the network at Ireland's first purpose-built injection facility in Cush Co. Kildare and represents the first step in Gas Networks Ireland's plan to roll out a network of renewable gas injection facilities across the country.

Gas Networks Ireland envisage that Renewable Gas can contribute 20% of the total gas network demand by 2030 equating to 11.5 TWh, sufficient to decarbonise the heating needs of one million homes.

#### Carbon Capture and Storage

In 2018 Ervia announced that they would undertaking a feasibility study into Carbon Capture and Storage (CCS) and the potential to use the depleted Kinsale Head gas field as a carbon dioxide store in order to reduce Ireland's carbon emissions.

#### **BioLPG**

Bio-LPG (bio-propane) from Calor is the first renewable gas to be available to homes, businesses and transport on the island of Ireland, since 2018. Bio-LPG is identical in appearance, performance and application to conventional LPG. It is made from a mix of sustainably sourced renewable vegetable oils, waste and residue feedstocks. Bio-LPG is a drop-in replacement for conventional LPG, and requires no investment, risk or change to the customer's equipment or facilities.

The biggest environmental gain is when it replaces solid and liquid fuels such as coal, peat and heating oil. Bio-LPG is certified at EU level, as offering up to 90% lower emissions compared to fossil fuels. Bio-LPG can be used for any industrial or commercial thermal process, and a range of applications, such as heating, catering, drying and even as the fuel of choice for forklift operators. Notably, Bio-LPG is now used to power many homes across the island of Ireland. Bio-LPG, like biomethane, also emits little to no particulate matter during combustion and can make an important contribution to addressing areas with poor air quality and the associated impact on human health.

## First Steps towards Decarbonising Gas in Ireland (continued)

#### Ireland to Scotland Interconnector

2018 also saw the full twinning of the Ireland to Scotland Interconnector with the commissioning of a new 50km gas transmission pipeline between Cluden and Brighouse Bay in Scotland. This reinforces security of supply across the island of Ireland and boosts the operational flexibility of the Irish gas network which is essential to providing backup to intermittent renewable electricity generation.

The development of gas standards at both an Irish and European level will continue to be a critical enabler to meet the challenges of today and the challenges which lie ahead for the gas industry in Ireland.



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## 6. Work programme for 2019

**GTSC TC 1** will continue to monitor and review the development of European and International Standards in CEN/TC 155/WG12, CEN/TC 234 – WG 2, 5, 8, 10, CEN/TC 237 and ISO/TC 138 SC2.

**GTSC TC 1** will review I.S. 822:2007 *Gas pressure regulating installations on service pipelines* in the context of the EN 12279:2000 standard and make a recommendation to confirm, withdraw or revise it.

Following completion of I.S. 820 by **GTSC TC 2**, NSAI will publish Edition 3 of I.S. 820:2019 – *Non-domestic Gas Installations* in Q1 2019.

**GTSC TC 2** will continue to monitor and review the development of European and International Standards in CEN/TC 049, CEN/TC 109, CEN/TC 181 and CENTC 234 – WG 1 & 8.

GTSC TC 2 will consider I.S. 813:2014+A1:2017 as it approaches its 5 year review.

**GTSC TC5** will continue the revision of I.S. 328-1 *Code of Practice for Gas Transmission* – *Pipelines* and I.S. 328-2, *Code of Practice for Gas Transmission* – *Pipeline Installations*. A draft of both parts will be launched for public enquiry Q3 2019.

**GTSC TC 5** will continue to monitor and review the development of European and International Standards in CEN/TC 012, CEN/TC 234/WG 03 and ISO/TC 67 SC 2.

**GTSC TC 6** will continue to monitor and review the activities and work of CEN TC 326 – *Natural Gas Vehicles – Fuelling and Operation*, WG 1, 3 and 6. TC 6 will review the need and feasibility of developing an Irish Standard or NA for CNG vehicle refuelling stations, considering the work being undertaken at CEN and ISO levels.

**GTSC TC 6** will review I.S. 808 *Specification for CNG Fuelled Vehicles* and make a recommendation to confirm, withdraw or revise it.

**GTSC TC 8** will continue with the revision of the Irish Standard I.S. 3213 – *Code of practice for the storage of LPG cylinders and cartridges,* which was last amended in 1993.

**GTSC TC 9** will continue to participate in the development of European Standards developed by CEN/TC 286 – *LPG equipment and accessories*, CEN/TC 296 – *Tanks for the transport of dangerous goods* and ISO TC58 SC2 – *Cylinder fittings* & SC4 – *Operational requirements for gas cylinders*.





# 7. Active standards within the scope of the GTSC

#### Indigenous Irish standards S.R. 12007-5:2016

Installation of Gas Service Pipes. Parts 1 and 2 (Fourth Edition)

#### SWiFT 8:2011

Specific requirements for electrical apparatus for the detection of Carbon Monoxide (CO) in domestic premises

#### I.S. 328:2015

Code of Practice for Gas Transmission Pipelines and Pipeline Installations (Including Amd. No. 1 2015)

#### I.S. 329:2015

Gas distribution mains (Including Amd. 1 2016)

#### I.S. 370:2016

Colour code for buried plastics piping

#### I.S. 808:2002

Specification for CNG Fuelled Vehicles

#### I.S. 813:2014+A1:2017

Domestic gas installations Edition 3 (Including AC1:2014 and AC2:2014)

#### I.S. 820:2010

Non-Domestic gas installations

#### I.S. 822:2007

Gas pressure regulating installations on service pipelines

#### I.S. 3213:1987

Code of Practice for the Storage of LPG Cylinders and Cartridges (Including Amd. No. 1 1990 & Amd. No. 2 1993)

#### I.S. 3216:2010+A1:2014

Code of practice – Bulk storage of Liquefied Petroleum Gas (LPG)

#### CEN TC 234 – Gas Infrastructure I.S. EN 15399:2018

Gas infrastructure – Safety Management System for Gas Networks with maximum operating pressure up to and including 16 bar

#### I.S. EN 1594:2013+AC1:2013

Gas infrastructure – Pipelines for maximum operating pressure over 16 bar – Functional requirements

#### I.S. EN 16726:2015+A1:2018

Gas infrastructure – Quality of gas – Group H

#### CEN/TR 16940:2016

Domestic gas installations – Recommendations for safety

#### I.S. EN 1775:2007

Gas supply – Gas pipework for buildings – Maximum operating pressure less than or equal to 5 bar – Functional recommendations

#### I.S. EN 1776:2015

Gas supply systems – Natural gas measuring stations – Functional requirements

#### I.S. EN 1918-1:2016

Gas supply systems – Underground gas storage – Part 1: Functional recommendations for storage in aquifers

#### I.S. EN 1918-2:2016

Gas supply systems – Underground gas storage – Part 2: Functional recommendations for storage in oil and gas fields

#### I.S. EN 1918-3:2016

Gas supply systems – Underground gas storage – Part 3: Functional recommendations for storage in solution-mined salt cavities

#### I.S. EN 1918-4:2016

Gas supply systems – Underground gas storage – Part 4: Functional recommendations for storage in rock caverns

#### I.S. EN 1918-5:2016

Gas supply systems – Underground gas storage – Part 5: Functional recommendations for surface facilities

#### I.S. EN 12007-1:2012

Gas infrastructure – Pipelines for maximum operating pressure up to and including 16 bar – Part 1: General functional requirements

#### I.S. EN 12007-2:2012

Gas infrastructure – Pipelines for maximum operating pressure up to and including 16 bar – Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)

#### I.S. EN 12007-3:2015

Gas supply systems – Pipelines for maximum operating pressure up to and including 16 bar – Part 3: Specific functional recommendations for steel

#### I.S. EN 12007-4:2012

Gas infrastructure – Pipelines for maximum operating pressure up to and including 16 bar – Part 4: Specific functional requirements for renovation

#### I.S. EN 12007-5:2014

Gas infrastructure – Pipelines for maximum operating pressure up to and including 16 bar – Part 5: Service lines – Specific functional requirements

#### I.S. EN 12186:2014

Gas infrastructure – Gas pressure regulating stations for transmission and distribution – Functional requirements

#### I.S. EN 12279:2000 + A1:2005

Gas supply systems – Gas pressure regulating installation on service lines – Functional requirements

#### I.S. EN 12327:2012

Gas infrastructure – Pressure testing, commissioning and decommissioning procedures – Functional requirements

#### I.S. EN 12732:2013+A1:2014

Gas infrastructure – Welding steel pipework – Functional requirements

#### I.S. EN 15001-1:2009

Gas Infrastructure – Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and non-industrial installations – Part 1: Detailed functional requirements for design, materials, construction, inspection and testing

#### I.S. EN 15001-2:2008

Gas infrastructure – Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and nonindustrial installations – Part 2: Detailed functional requirements for commissioning, operation and maintenance

#### SR CEN/TC 15399:2007

Gas supply systems – Guidelines for management systems for gas distribution network

#### I.S. EN 16348:2013

Gas infrastructure – Safety Management System (SMS) for gas transmission infrastructure and Pipeline Integrity Management System (PIMS) for gas transmission pipelines – Functional requirements

#### CEN/TR 13737-1:2012

Implementation Guide for functional standards prepared by CEN/TC 234 Gas infrastructure – Part 1: General

#### CEN/TR 16395:2012

Gas Infrastructure – CEN/ TC 234 Pressure Definitions – Guideline Document

#### CEN TC 235 – Gas pressure regulators and safety devices in gas transmission and distribution standard

#### I.S. EN 334:2005+A1:2009

Gas pressure regulators for inlet pressures up to 100 bar

#### I.S. EN 13787:2002 (Withdrawn)

Elastomers for gas pressure regulators and associated safety devices for inlet pressures up to 100 bar

#### I.S. EN 14382:2005+A1:2009/ AC:2009

Safety devices for gas pressure regulating stations and installations – Gas safety shut-off devices for inlet pressures up to 100 bar

#### CEN TC 236 – Non industrial manually operated shut-off valves for gas and particular combinations valves-other products

#### I.S. EN 331:2015

Manually operated ball valves and closed bottom taper plug valves for gas installations for buildings

#### I.S. EN 15069:2008

Safety gas connection valves for metal hose assemblies used for the connection of domestic appliances using gaseous fuel

#### CEN TC 237 – Gas Meters I.S. 1359:2017

Gas meters – Diaphragm gas meters

#### I.S. 12480:2018

Gas meters – Rotary displacement gas meters

#### I.S. EN 12261:2018

Gas meters – Turbine gas meters

#### I.S. EN 16314:2013

Gas meters – Additional functionalities

#### I.S. EN 12405-1:2018

Gas meters – Conversion devices – Part 1: Volume conversion

#### I.S. EN 12405-2:2012

Gas meters – Conversion devices – Part 2: Energy conversion

I.S. EN 14236:2018 Ultrasonic domestic gas meters

### SR CEN/TR 16061:2015

Gas meters – Smart gas meters

#### CEN TC 286 – LPG equipment and accessories standards

#### I.S. EN 1439:2017

LPG equipment and accessories – Procedure for checking LPG cylinders before, during and after filling

#### I.S. EN 1440:2016+A1:2018

LPG equipment and accessories – Transportable refillable traditional welded and brazed steel Liquefied Petroleum Gas (LPG) cylinders – Periodic inspection

#### I.S. EN 1442:2017

LPG equipment and accessories – Transportable refillable welded steel cylinders for LPG – Design and construction

#### I.S. EN 12252:2014

LPG Equipment and accessories – Equipping of LPG road tankers

#### I.S. EN 12493:2013+A2:2018

LPG equipment and accessories – Welded steel pressure vessels for LPG road tankers – Design and manufacture

#### I.S. EN 12542:2010

LPG Equipment and accessories – Static welded steel cylindrical tanks, serially produced for the storage of Liquefied petroleum gas (LPG) having a volume not greater than 13 m3 and for installation above ground – Design and manufacture

#### I.S. EN 12805:2002

Automotive LPG components – Containers

#### I.S. EN 12806:2003

Automotive liquefied petroleum gas components – Other than containers

#### I.S. EN 12807:2009

LPG Equipment and accessories – Transportable refillable brazed steel cylinders for liquefied petroleum gas (LPG) – Design and construction

#### I.S. EN 12816:2010

LPG equipment and accessories – Transportable refillable LPG cylinders – Disposal

#### I.S. EN 12817:2010

LPG equipment and accessories – Inspection and requalification of LPG tanks up to and including 13 m3 overground

#### I.S. EN 12819:2009

LPG equipment and accessories – Inspection and requalification of LPG tanks greater than 13 m3 overground

#### I.S. EN 12979:2002

Automotive LPG-systems – Installation requirements

#### I.S. EN 13109:2010

LPG equipment and accessories – LPG tanks and drums – Disposal

#### I.S. EN 13110:2012+A1:2017

LPG equipment and accessories – Transportable refillable welded aluminium cylinders for liquefied petroleum gas (LPG) – Design and construction

#### I.S. EN 13175:2014

LPG equipment and accessories – Specification and testing for liquefied petroleum gas (LPG) tank valves and fittings

#### I.S. EN 13760:2003

Automotive LPG filling system for light and heavy duty vehicles – Nozzle test requirements and dimensions

#### I.S. EN 13776:2013

LPG equipment and accessories – Filling and discharge procedures for LPG road tankers

#### I.S. EN 13799:2012

LPG equipment and accessories – Contents gauges for Liquefied Petroleum Gas (LPG) pressure vessels

#### I.S. EN 13856:2002

Minimum requirements for the content of the user manual for automotive LPG systems

#### I.S. EN 13952:2017

LPG equipment and accessories – Filling procedures for LPG cylinders

#### I.S. EN 13953:2015

LPG equipment and accessories – Pressure relief valves for transportable refillable cylinders for Liquefied Petroleum Gas (LPG)

#### I.S. EN 14071:2015

Pressure relief valves for LPG tanks – Ancillary equipment

#### I.S. EN 14129:2014

LPG equipment and accessories – Pressure relief valves for LPG pressure vessels

#### I.S. EN 14140:2014+AC:2015

LPG Equipment and accessories – Transportable refillable welded steel cylinders for LPG – Alternative design and construction

#### I.S. EN 14334:2014

LPG equipment and accessories – Inspection and testing of LPG road tankers

#### I.S. EN 14427:2014

LPG equipment and accessories – Transportable refillable fully wrapped composite cylinders for LPG – Design and construction

#### I.S. EN 14570:2014

LPG Equipment and accessories – Equipping of overground and underground LPG vessels

#### I.S. EN 14678-1:2013

LPG equipment and accessories – Construction and performance of LPG equipment for automotive filling stations – Part 1: Dispensers

#### I.S. EN 14678-2:2007+A1:2012

LPG equipment and accessories – Equipment for liquefied petroleum gas automotive filling stations – Part 2: Components other than dispensers and installation requirements

#### I.S. EN 14678-3:2013

LPG equipment and accessories – Construction and performance of LPG equipment for automotive filling stations – Part 3: Refuelling installations at commercial and industrial premises

#### I.S. EN 14841:2013

LPG equipment and accessories – Discharge procedures for LPG rail tankers

#### I.S. EN 14893:2014

LPG equipment and accessories – Transportable Liquefied Petroleum Gas (LPG) welded steel pressure drums with a capacity between 150 litres and 1 000 litres

#### I.S. EN 14894:2013

LPG equipment and accessories – Cylinder and drum marking

#### I.S. EN 14912:2015

LPG equipment and accessories – Inspection and maintenance of LPG cylinder valves at time of periodic inspection of cylinders

#### I.S. EN 15202: 2012

LPG equipment and accessories – Essential operational dimensions for LPG cylinder valve outlet and associated equipment connections.

#### I.S. EN 15609:2012

LPG equipment and accessories – LPG propulsion systems for boats, yachts and other craft

#### I.S. EN 16119:2013

LPG equipment and accessories – Sealing caps and plugs for LPG cylinder and pressure vessel valves – Specification and testing

#### I.S. EN ISO 14245:2010

Gas cylinders – Specifications and testing of LPG cylinder valves – Self-closing (ISO 14245:2006)

#### I.S. EN ISO 15995:2010

Gas cylinders – Specifications and testing of LPG cylinder valves – Manually operated (ISO 15995:2006)

#### I.S. EN 16728:2016+A1:2018

LPG equipment and accessories – Transportable refillable LPG cylinders other than traditional welded and brazed steel cylinders – Periodic inspection

## CEN TC 238 – Test gases, test pressures and categories of appliances

#### I.S. EN 437:2018

Test gases – Test pressures – Appliance categories

#### SR CR 1404:1994

Determination of emissions from appliances burning gaseous fuels during type-Testing

#### I.S. EN ISO 6976:2016

Natural gas – Calculation of calorific values, density, relative density and Wobbe index from composition

#### I.S. EN ISO 6326-1:2009

Natural gas – Determination of sulphur compounds – Part 1: General introduction

#### I.S. EN ISO 6974-3:2018

Natural gas – Determination of composition and associated uncertainty by gas chromatography – Part 3: Precision and bias (ISO 6974-3:2018)

#### I.S. EN ISO 6974-5:2014

Natural gas – determination of sulphur compounds – Part 5: Lingener combustion method

#### I.S. EN ISO 10715:2000

Natural gas - Sampling guidelines

#### I.S. EN ISO 15112:2018

Natural gas – Energy determination (ISO 15112:2018)

#### CEN TC 108 (Disbanded) – Sealing materials and lubricants for gas appliances and gas equipment

#### I.S. EN 377:1994+A1:1997

Lubricants for applications in appliances and associated controls using combustible gases except those designed for use in industrial processes

#### I.S. EN 751-1:1997

Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water – Part 1: Anaerobic jointing compounds

#### I.S. EN 751-2:1997

Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water – Part 2: Non-hardening jointing compounds

#### I.S. EN 751-3:1997

Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water – Part 3: Unsintered PTFE tapes

#### I.S. EN 13090:2001

Means for resealing threaded joints of gas pipeworks in buildings

#### TC 155 – Plastics piping systems and ducting systems I.S. EN 1555-1:2010

#### I.S. EN 1555-1+NA:2015

Plastics piping systems for gaseous fuels supply – Polyethylene (PE) – Part 1: General

#### I.S. EN 1555-2:2010 I.S. EN 1555-2+NA:2015

Plastics piping systems for gaseous fuels supply – Polyethylene (PE) – Part 2: Pipes

#### I.S. EN 1555-3:2010+A1:2012

Plastics piping systems for gaseous fuels supply – Polyethylene (PE) – Part 3: Fittings

#### I.S. EN 1555-4:2011

Plastics piping systems for gaseous fuels supply – Polyethylene (PE) – Part 4: Valves

#### I.S. EN 1555-5:2010

Plastics piping systems for gaseous fuels supply – Polyethylene (PE) – Part 5: Fitness for purpose of the system

#### I.S. EN ISO 17778:2015

Plastics piping systems – Fittings, valves and ancillaries – Determination of gaseous flow rate/pressure drop relationships (ISO 17778:2015)

#### SR CEN/TS 1555-7:2013

Plastics piping systems for the supply of gaseous fuels – Polyethylene (PE) – Part 7: Guidance for the assessment of conformity

#### I.S. EN ISO 11299-1:2013

Plastics piping systems for renovation of underground gas supply networks – Part 1: General (ISO 11299-1:2011)

#### I.S. EN ISO 11299-3:2013

Plastics piping systems for renovation of underground gas supply networks – Part 3: Lining with close-fit pipes (ISO 11299-3:2011)

#### TC 218 – Rubber and plastics hoses and hose assemblies

#### I.S. EN 1762:2018

Rubber hoses and hose assemblies for liquefied petroleum gas, LPG (liquid or gaseous phase), and natural gas up to 25 bar (2,5 MPa) – Specification

#### I.S. EN 13766:2018

Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of liquid petroleum gas and liquefied natural gas – Specification

### Additional pipeline and pipework standards

#### I.S. EN 1057:2006+A1:2010

Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating applications

#### I.S. EN 1092-1:2018

Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 1: Steel flanges

#### I.S. EN 1254-2:1998

Copper and copper alloys – Plumbing fittings – Part 2: Fittings with compression ends for use with copper tubes

#### I.S. EN 17778:2015

Plastics piping systems – Fittings, valves and ancillaries – Determination of gaseous flow rate/pressure drop relationships (ISO 17778:2015)

#### I.S. EN ISO 17636-1:2013

Non-destructive testing of welds – Radiographic testing – Part 1: X- and gamma-ray techniques with film

#### I.S. EN ISO 17636-2:2013

Non-destructive testing of welds – Radiographic testing – Part 2: Xand gamma-ray techniques with digital detectors

#### I.S. EN ISO 17637:2016

Non-destructive testing of welds – visual testing of fusion welded joints

#### I.S. EN 10204:2004

Metallic products – Types of inspection documents

#### I.S EN ISO 3183:2012+A1:2018

Petroleum and natural gas industries – Steel pipe for pipeline transportation systems (ISO 3183:2012/Amd 1:2017)

#### I.S. EN 10226-1:2004

Pipe threads where pressure tight joints are made on the threads – Part 1: Taper external threads and parallel internal threads – Dimensions, tolerances and designation

#### I.S. EN 10226-2:2005

Pipe threads where pressure tight joints are made on the threads – Part 2: Taper external threads and taper internal threads – Dimensions, tolerances and designation

#### I.S. EN 10241:2000

Steel threaded pipe fittings

#### I.S. EN 10242:1995+A2:2003

Threaded pipe fitting in malleable cast iron

#### I.S. EN 12068:1999

Cathodic protection – External organic coatings for the corrosion protection of buried or immersed steel pipelines used in conjunction with cathodic protection – Tapes and shrinkable materials

#### I.S. EN 12954:2001

Cathodic protection of buried or immersed metallic structures – General principles and application for pipelines

#### I.S. EN 13942:2009+AC1:2009

Petroleum and natural gas industries – Pipeline transportation systems – Pipeline valves

#### I.S. EN 14800:2007

Corrugated safety metal hose assemblies for the connection of domestic appliances using gaseous fuels

#### I.S. EN 15069:2008

Safety gas connection valves for metal hose assemblies used for the connection of domestic appliances using gaseous fuel

#### I.S. EN 15266:2007

Stainless steel pliable corrugated tubing kits in buildings for gas with an operating pressure up to 0,5 bar

#### I.S. EN ISO 228-1:2003

Pipe threads where pressuretight joints are not made on the threads – Part 1: Dimensions, tolerances and designation

#### I.S. EN ISO 16810:2014

Non-destructive testing – Ultrasonic testing – General principles (ISO 16810:2012)

#### I.S. EN ISO 17638:2016

Non-destructive testing of welds – Magnetic particle testing

#### I.S. EN ISO 17640:2018

Non-destructive testing of welds – Ultrasonic testing – Techniques, testing levels, and assessment

#### Gas appliance standards I.S. EN 26:2015

Gas-fired instantaneous water heaters for the production of domestic hot water, filled with atmospheric burners

#### I.S. EN 89:2015

Gas-fired storage water heaters for the production of domestic hot water

#### I.S. EN 30-1-1:2008+A3:2013

Domestic cooking appliances burning gas – Part 1-1: Safety – General

#### I.S. EN 30-2-1:2015

Domestic cooking appliances burning gas – Part: 2-1: Rational use of energy – General

#### I.S. EN 30-2-2:1999

Domestic cooking appliances burning gas – Part 2-2: Rational use of energy – Appliances having forced-convection ovens and/or grills

#### I.S. EN 30-1-3:2003+A1:2006

Domestic cooking appliances burning gas – Part 1-3: Safety – Appliances having a glass ceramic hotplate

#### I.S. EN 30-1-4:2012

Domestic cooking appliances burning gas – Safety – Part 1-4: Appliances having one or more burners with an automatic burner control system

#### I.S. EN 15181:2008

Measuring method of the energy consumption of gas fired ovens

#### I.S. EN 203-1:2014

Gas heated catering equipment – Part 1: General safety rules

#### I.S. EN 203-2-1:2014

Gas heated catering equipment – Part 2-1: Specific requirements – Open burners and wok burners

#### I.S. EN 203-2-2:2015

Gas heated catering equipment – Part 2-2: Specific requirements – Ovens

#### I.S. EN 203-2-3:2014

Gas heated catering equipment – Part 2-3: Specific requirements – Boiling pans

#### I.S. EN 203-2-4:2005

Gas heated catering equipment – Part 2-4: Specific requirements – Fryers

#### I.S. EN 203-2-6:2005

Gas heated catering equipment – Part 2-6: Specific requirements – Hot water heaters for beverage

#### I.S. EN 203-2-7:2014

Gas heated catering equipment – Part 2-7: Specific requirements – Salamanders and rotisseries

#### I.S. EN 203-2-8:2016

Gas heated catering equipment – Part 2-8: Specific requirements – Brat pans and paëlla cookers

#### I.S. EN 203-2-9:2005

Gas heated catering equipment – Part 2-9: Specific requirements – Solid tops, warming plates and griddles

#### I.S. EN 203-2-10:2007

Gas heated catering equipment – Part 2-10: Specific requirements – Chargrills

#### I.S. EN 203-2-11:2006

Gas heated catering equipment – Part 2-11: Specific requirements – Pasta cookers

#### I.S. EN 203-3:2009

Gas heated catering equipment – Part 3: Materials and parts in contact with food and other sanitary aspects

## CEN TC 181 – Dedicated liquefied petroleum gas appliances

#### I.S. EN 417:2012

Non-refillable metallic gas cartridges for liquefied petroleum gases, with or without a valve, for use with portable appliances – Construction, inspection, testing and marking

#### I.S. EN 449:2002+A1:2007

Specification for dedicated liquefied petroleum gas appliances – Domestic flueless space heaters (including diffusive catalytic combustion heaters)

#### I.S. EN 461:2000+A1:2004

Specification for dedicated liquefied petroleum gas appliances – Flueless nondomestic space heaters not exceeding 10 kW

#### I.S. EN 484:1998

Specification for dedicated liquefied petroleum gas appliances – Independent hotplates, including those incorporating a grill for outdoor use

#### I.S. EN 497:1998

Specification for dedicated liquefied petroleum gas appliances – Multi-purpose boiling burners for outdoor use

#### I.S. EN 498:2012

Specification for dedicated liquefied petroleum gas appliances – Barbecues for outdoor use contact grills included

#### I.S. EN 521:2006

Specifications for dedicated liquefied petroleum gas appliances – Portable vapour pressure liquefied petroleum gas appliances

#### I.S. EN 624:2011

Specification for dedicated LPG appliances – Room sealed LPG space heating equipment for installation in vehicles and boats

#### I.S. EN 732:1999

Specifications for dedicated liquefied petroleum gas appliances – Absorption refrigerators

#### I.S. EN 1596:1998+A1:2004

Specification for dedicated liquefied petroleum gas appliances – Mobile and portable non-domestic forced convection direct fired air heaters

#### I.S. EN 1949:2011+NA:2013

Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and accommodation purposes in other vehicles

#### I.S. EN 14543:2017

Specification for dedicated liquefied petroleum gas appliances – Parasol patio heaters – Flueless radiant heaters for outdoor or amply ventilated area use

#### I.S. EN 15033:2006+AC1:2008

Room sealed storage water heaters for the production of sanitary hot water using LPG for vehicles and boats

#### I.S. EN 16129:2013

Pressure regulators, automatic change-over devices, having a maximum regulated pressure of 4 bar, with a maximum capacity of 150 kg/h, associated safety devices and adaptors for butane, propane, and their mixtures

#### I.S. EN 16436-1:2014+A2:2018

Rubber and plastics hoses, tubing and assemblies for use with propane and butane and their mixture in the vapour phase – Part 1: Hoses and tubings

#### CEN TC 62 – Independent gas-fired space heaters

#### I.S. EN 509:1999+A2:2004

Decorative fuel-effect gas appliances

#### I.S. EN 613:2000+A1:2003

Independent gas-fired convection heaters

#### I.S. EN 1266:2002+A1:2005

Independent gas-fired convection heaters incorporating a fan to assist transportation of combustion air and/or flue gases

#### I.S. EN 13278:2013

Open fronted gas-fired independent space heaters

#### I.S. EN 14438:2006

Gas-fired insets for heating more than one room

#### I.S. EN 14829:2007

Independent gas-fired flueless space heaters for nominal heat input not exceeding 6 kW

## CEN TC 109 – Central heating boilers using gaseous fuels

#### I.S. EN 303-3:1999+AC1:2006

Heating Boilers – Gas-fired heating boilers – Assembly comprising a boiler body and a forced draught burner

#### I.S. EN 303-7:2006

Heating boilers – Part 7: Gas-fired central heating boilers equipped with a forced draught burner of nominal heat output not exceeding 1 000 kW

#### I.S. EN 656:2000+A1:2006

Gas-fired central heating boilers – Type B boilers of nominal heat input exceeding 70 kW, but not exceeding 300 kW

#### I.S. EN 13836:2006

Gas fired central heating boilers – Type B boilers of nominal heat input exceeding 300 kW, but not exceeding 1 000 kW

#### I.S. EN 15502-1:2012 + A1:2015

Gas-fired heating boilers – Part 1: General requirements and tests

#### I.S. EN 15502-2-1:2012 + A1:2016

Gas-fired central heating boilers – Part 2-1: Specific standard for type C appliances and type B2, B3 and B5 appliances of a nominal heat input not exceeding 1 000 kW

#### I.S. EN 15502-2-2:2014

Gas-fired central heating boilers – Part 2-2: Specific standard for type B1 appliances

#### I.S. EN 13203-1:2015

Gas fired domestic appliances producing hot water – Part 1: Assessment of performance of hot water deliveries

#### I.S. EN 13203-2:2015

Gas-fired domestic appliances producing hot water – Part 2: Assessment of energy consumption

#### I.S. EN 13203-3:2010

Solar supported gas-fired domestic appliances producing hot water – Appliances not exceeding 70 kW heat input and 500 litres water storage capacity – Part 3: Assessment of energy consumption

#### CEN TC 58 – Safety and control devices for burners and appliances burning gaseous or liquid fuels I.S. EN 88-1:2011 + A1:2016

Pressure regulators and associated safety devices for gas appliances – Part 1: Pressure regulators for inlet pressures up to and including 50 kPa

#### I.S. EN 88-2:2007

Pressure regulators and associated safety devices for gas appliances – Part 2: Pressure regulators for inlet pressures above 500 mbar up to and including 5 bar

#### I.S. EN 125:2010+A1:2015

Flame supervision devices for gas burning appliances – Thermoelectric flame supervision devices

#### I.S. EN 126:2012

Multifunctional controls for gas burning appliances

#### I.S. EN 161:2011+A3:2013

Automatic shut-off valves for gas burners and gas appliances

#### I.S. EN 257:2010

Mechanical thermostats for gas-burning appliances

#### I.S. EN 298:2012

Automatic burner control systems for burners and appliances burning gaseous or liquid fuels

#### I.S. EN 1106:2010

Manually operated taps for gas burning appliances

#### I.S. EN 1643:2014

Safety and control devices for gas burners and gas burning appliances – Valve proving systems for automatic shut-off valves

#### I.S. EN 1854:2010

Pressure sensing devices for gas burners and gas burning appliances

#### I.S. EN 13611:2015 + AC:2016

Safety and control devices for gas burners and gas burning appliances – General requirements

#### I.S. EN 14459:2015

Control functions in electronic systems for gas burners and gas burning appliances – Methods for classification and assessment

#### I.S. EN 16304:2013

Automatic vent valves for gas burners and gas burning appliances

#### I.S. EN 16304:2014

Safety and control devices for burners and appliances burning gaseous or liquid fuels – Combustion product sensing devices

#### I.S. EN 12067-2:2004

Gas/air ratio controls for gas burners and gas burning appliances – Part 2: Electronic types

#### I.S. EN 16678:2015

Safety and control devices for gas burners and gas burning appliances – Automatic shut-off valves for operating pressure of above 500 kPa up to and including 6 300 kPa

#### I.S. EN 16830:2017

Safety and control devices for burners and appliances burning gaseous or liquid fuels – Control functions in electronic systems – Temperature Control function

#### CLC TC 216 – Gas detectors

#### I.S. EN 50545-1:2011 + A1:2016

Electrical apparatus for the detection and measurement of toxic and combustible gases in car parks and tunnels – Part 1: General performance requirements and test methods for the detection and measurement of carbon monoxide and nitrogen oxides

#### I.S. EN 50291-1:2018

Electrical apparatus for the detection of carbon monoxide in domestic premises – Part 1: Test methods and performance requirements

#### I.S. EN 50291-2:2010+A1:2012

Electrical apparatus for the detection of carbon monoxide in domestic premises – Part 2: Electrical apparatus for continuous operation in a fixed installation in recreational vehicles and similar premises including recreational craft – Additional test methods and performance requirements

#### I.S. EN 50292:2013

Electrical apparatus for the detection of carbon monoxide in domestic premises, caravans and boats – Guide on the selection, installation and maintenance

#### I.S. EN 50543:2011

Electronic portable and transportable apparatus designed to detect and measure carbon dioxide and/or carbon monoxide in indoor ambient air – Requirements and test methods

#### I.S. EN 50379-1:2012

Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances – Part 1: General requirements and test methods

#### I.S. EN 50379-2:2012

Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances – Part 2: Performance requirements for apparatus used in statutory inspections and assessment

#### I.S. EN 50379-3:2012

Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances – Part 3: Performance requirements for apparatus used in non-statutory servicing of gas fired heating appliances

#### I.S. EN 50194-1:2009

Electrical apparatus for the detection of combustible gases in domestic premises – Part 1: Test methods and performance requirements

#### I.S. EN 50194-2:2006 + A1:2016

Electrical apparatus for the detection of combustible gases in domestic premises – Part 2: Electrical apparatus for continuous operation in a fixed installation in recreational vehicles and similar premises – Additional test methods and performance requirements

#### I.S. EN 50244:2016

Electrical apparatus for the detection of combustible gases in domestic premises – Guide on the selection, installation, use and maintenance

#### CEN TC 282 Installation and equipment for LNG

#### I.S. EN 1473:2016

Installation and equipment for liquefied natural gas – Design of onshore installations

#### I.S. EN 1474-1:2008

Installation and equipment for liquefied natural gas – Design and testing of marine transfer systems – Part 1: Design and testing of transfer arms

#### I.S. EN 1474-2:2008

Installation and equipment for liquefied natural gas – Design and testing of marine transfer systems – Part 2: Design and testing of transfer hoses

#### I.S. EN 1474-3:2008

Installation and equipment for liquefied natural gas – Design and testing of marine transfer systems – Part 3: Offshore transfer systems

#### I.S. EN 12065:1998

Installations and equipment for liquefied natural gas – Testing of foam concentrates designed for generation of medium and high expansion foam and of extinguishing powders used on liquefied natural gas fires

#### I.S. EN 12066:1998

Installations and equipment for liquefied natural gas – Testing of insulating linings for liquefied natural gas impounding areas

#### I.S. EN 12308:1999

Installations and equipment for LNG – Suitability testing of gaskets designed for flanged joints used on LNG piping

#### I.S. EN 12838:2000

Installations and equipment for liquefied natural gas – Suitability testing of LNG sampling systems

#### I.S. EN 13645:2002

Installations and equipment for liquefied natural gas – Design of onshore installations with a storage capacity between 5 T and 200 T

#### I.S. EN ISO 28460:2010

Petroleum and natural gas industries – Installation and equipment for liquefied natural gas – Ship-to-shore interface and port operations

#### I.S. EN 16903:2015

Petroleum and natural gas industries – Characteristics of LNG, influencing the design, and material selection (ISO 16903:2015)

#### CEN TC 326 – Gas supply for Natural Gas Vehicles (NGV)

#### I.S. EN 13423:2001

Compressed natural gas vehicle operations

#### ISO/TC 22/SC 41/WG 3 – Fuel system components and refuelling connector for vehicles propelled by gaseous fuel

#### I.S. EN ISO 14469:2017

Road vehicles – Compressed natural gas (CNG) refuelling connector (ISO 14469:2017)

#### ISO 15500-1:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 1: General requirements and definitions

#### ISO 15500-2:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 2: Performance and general test methods

#### ISO 15500-3:2012

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 3: Check valve

#### ISO 15500-4:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 4: Manual valve

#### ISO 15500-5:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 5: Manual cylinder valve

#### ISO 15500-6:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 6: Automatic valve

#### ISO 15500-7:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 7: Gas injector

#### ISO 15500-8:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 8: Pressure indicator

#### ISO 15500-9:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 9: Pressure regulator

#### ISO 15500-10:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 10: Gas-flow adjuster

#### ISO 15500-11:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 11: Gas/air mixer

#### ISO 15500-12:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 12: Pressure relief valve (PRV)

#### ISO 15500-13:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 13: Pressure relief device (PRD)

#### ISO 15500-14:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 14: Excess flow valve

#### ISO 15500-15:2015

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 15: Gas-tight housing and ventilation hose

#### ISO 15500-16:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 16: Rigid fuel line

#### ISO 15500-17:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 17: Flexible fuel line

#### ISO 15500-18:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 18: Filter

#### ISO 15500-19:2012/Amd 1:2016

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 19: Fittings

#### ISO 15500-20:2007

Road vehicles – Compressed natural gas (CNG) fuel system components – Part 20: Rigid fuel line in material other than stainless steel

#### ISO/TC 22/SC 41/WG 6 – Fuel system components and refuelling connector for vehicles propelled by Liquefied Petroleum Gas (LPG)

#### ISO 20826:2006

Automotive LPG components – Containers

#### CEN TC 12 – Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries

#### I.S. EN 14161:2011+A1:2015

Petroleum and natural gas industries – Pipeline transportation systems

#### I.S. EN 14163:2002+AC1:2006

Petroleum and natural gas industries – Pipeline transportation systems – Welding of pipelines

#### I.S. EN 14870-1:2011

Petroleum and natural gas industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 1: Induction bends (ISO 15590-1:2009 modified)

#### I.S. EN 14870-2:2005

Petroleum and natural gas industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 2: Fittings

#### I.S. EN 14870-3:2006

Petroleum and natural gas industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 3: Flanges

#### I.S. EN ISO 14723:2009

Petroleum and natural gas industries – Pipeline transportation systems – Subsea pipeline valves

#### I.S. EN ISO 16708:2006

Petroleum and natural gas industries – Pipeline transportation systems – Reliability-based limit state methods

#### I.S. EN ISO 21329:2004

Petroleum and natural gas industries – Pipeline transportation systems – Test procedures for mechanical connectors

#### ISO TC 67 SC 2 Pipeline transportation systems ISO 13847:2013

Petroleum and natural gas industries – Pipeline transportation systems – Welding of pipelines

#### ISO 14313:2007/Cor 1:2009

Petroleum and natural gas industries – Pipeline transportation systems – Pipeline valves

#### ISO 15589-1:2015

Petroleum and natural gas industries – Cathodic protection of pipelines transportation systems – Part 1: On-land pipelines

#### I.S. EN ISO 15589-2:2014

Petroleum and natural gas industries – Cathodic protection of pipeline transportation systems – Part 2: Offshore pipelines

#### ISO 15590-1:2009

Petroleum and natural gas industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 1: Induction bends

#### I.S. EN ISO 21809-1:2011

Petroleum and natural gas industries – External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 1: Polyolefin coatings (3-layer PE and 3-layer PP)

#### I.S. EN ISO 21809-2:2014

Petroleum and natural gas industries – External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 2: Fusion-bonded epoxy coatings

#### I.S. EN ISO 21809-3:2016

Petroleum and natural gas industries – External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 3: Field joint coatings

#### ISO 21809-4:2009

Petroleum and natural gas industries – External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 4: Polyethylene coatings (2-layer PE)

#### I.S. EN ISO 21809-5:2017

Petroleum and natural gas industries – External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 5: External concrete coatings

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