Hydro Business Partner
Production Partner

Report

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To
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WP 2.1 – Codes and Standards

Summary

Collecting existing codes and standards with references, has been based on searching into web-sites of European and international standardisation organizations by using keywords. These keywords are mentioned below on this page.

The web site of the European Committee for Standardization, cenorm.be, has a collection of On-line Catalogues of European Standards, covering the countries of Europe by links. Among these countries Great Britain, BSI, and France, AFNOR, have large catalogues, covering the most of European standards, EN, and the international ISO too, in addition to its own country's national standards. France has a good English version of its catalogue. Germany's catalogue is linked to the firm, Beuth Verlag GmbH, has an English version too. The German catalogue gives no abstract of its document references, as the other two mentioned.

BSI and AFNOR have an information page of each document reference, giving abstract or descriptors of the document's contents. This information has been copied and pasted below the title of the documents, where it is available.

The search for American standards have been executed via ANSI.org and the linked web sites of Global Engineering Documents and NSSN, National Resource for Global Standards. References solely found on these web sites have been mentioned without abstracts or descriptors. The result of search for hydrogen, liquid and gaseous fuel, into the American catalogues by the same keywords came out with just a few more references.

Some of the standardization activities on Hydrogen are coordinated by the American organization National Hydrogen Association, the most of these have still a draft classification.

As the doc.references have many types of acceptance levels, draft issues are cathegorized among the rest of the references according to the same criteria as approved documents. The whole collection amounts to 190 doc.references Very few solely national references are delivered to the collection.

Key words
Liquid fuel, gaseous fuel, gasoline, diesel, CNG, hydrogen fuel, liquid hydrogen, gaseous hydrogen fuel, combustible gas, compressed natural gas, mechanical + explosive atmosphere, vehicle + fuel, refuelling station, cryogenic

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1 Standards for Fuels

1.1 Product specifications

ISO 14687: 1999/Corr. 1:2001 Hydrogen fuel – Product specification
Application: Standard specifies the quality characteristics of hydrogen fuel in order to assure uniformity of the hydrogen product as produced and distributed for utilization in vehicular, appliance or other fuelling applications

ISO 13686: 1998 Natural gas - Quality designation
Descriptors: NATURAL GAS, QUALITY, SPECIFICATIONS, COMPOSITION : PROPERTY, CHARACTERISTICS, INTERCHANGEABILITY

NF EN 1160: 1996 Installation and equipment for liquefied natural gas. General characteristics of liquefied natural gas
Abstract: Provides guidance on characteristics of liquefied natural gas and cryogenic materials.

BS-ISO 15403: 2000 Natural gas. Designation of the quality of Natural gas for use as a compressed fuel for vehicles
Descriptors: Natural gas, Gas technology, Designations, Grades (quality), Quality, Compressed gases, Gases, Fuels, Automotive fuels, Gaseous fuels, Vehicles, Corrosion protection, Performance, Internal combustion engines.

1.2 Liquefied fuels – requirements and testing

NS-EN 589: 1993 Automotive fuels – LPG – Requirements and test methods
Application: Specifies requirements and test methods for marketed and delivered automotive LPG. Warning attention is drawn to the risk of fire and explosion when handling LPG and to the hazard to health which arises through inhalation of excessive amounts of LPG. LPG forms flammable mixture with air over the range of approximately 2 % (V/V) to 10 % (V/V).

BS 6843-3: 1988 Classification of petroleum fuels - Liquefied petroleum gases.
Descriptors: Petroleum products, Fuels, Liquid fuels, Classification systems, Fossil fuels, Liquefied gases, Liquefied petroleum gas, Designations

PR NF EN ISO 8943: 2000 Refrigerated light hydrocarbon fluids - Sampling of liquefied natural gas - Continuous method
Descriptors: PETROLEUM PRODUCTS, HYDROCARBONS, LIQUEFIED NATURAL GAS, SAMPLING, TRANSFER, PIPELINE TRANSPORT, PROCEDURE

NF EN 12065: 1997 Installation 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.
Descriptors: GAS INSTALLATION, LIQUEFIED NATURAL GAS, EXTINGUISHING AGENTS, FOAM EXTINGUISHERS, DRY POWDER EXTINGUISHERS, TESTS, TEST EQUIPMENT, EFFECTIVENESS, COMPATIBILITY, ACCEPTABILITY

UNE-EN 12066: 1998 Installation and equipment for liquefied natural gas. Testing of insulating linings for liquefied natural gas. Impounding areas
Descriptors: GAS INSTALLATION, LIQUEFIED NATURAL GAS, VATS, PROTECTIVE COATINGS, INSULATION, EVAPORATION, WATER BATH EVAPORATION, DEFINITIONS, TESTS, TEST EQUIPMENT, TEST BENCHES, MEASUREMENT, COEFFICIENTS, COMPUTATION

UNE-EN 12308: 1999 Installation and equipment for LNG. Suitability testing of gaskets designed for flanged joints used on LNG piping

Descriptors: GAS INSTALLATION, GAS PIPES, LIQUEFIED NATURAL GAS, PIPE FITTINGS, PIPE JOINTS, FLANGE CONNECTIONS, PIPE FLANGES, OPERATING REQUIREMENTS, TESTS, TESTING CONDITIONS, CLAMPING TESTS, LEAK TESTS, ACCEPTABILITY

NF EN 12567: 2000 Industrial valves - Isolating valves for LNG - Specification for suitability and appropriate verification tests
Descriptors: INDUSTRIAL VALVES, VALVES-AND FITTINGS, COCKS, GATE VALVES, STOP VALVES, PLUG-AND BALL VALVES, BUTTERFLY VALVES, LIQUEFIED NATURAL GAS, GAS PIPELINES, ROAD TRANSPORT, RAIL TRANSPORT, SEA TRANSPORT, DESIGN, SPECIFICATIONS, TESTS, TYPE TESTING : TESTS, THERMAL SHOCK TESTS, THERMAL ENDURANCE TESTS, CRYOGENICS, LEAK TESTS, MECHANICAL TESTS, RIGGING, FIRE RESISTANCE, ACCEPTANCE TESTING, MARKING

NF EN 12838: 2000 Installation and equipment for liquefied natural gas - Suitability testing of LNG sampling systems
Descriptors: GAS INSTALLATION, LIQUEFIED NATURAL GAS, DEFINITIONS, SAMPLING, TESTS, SAMPLING EQUIPMENT, COMPUTATION, ACCURACY, DETERMINATION, COMPOSITION : PROPERTY, CHROMATOGRAPHIC ANALYSIS

NS-EN-ISO 13736 1998: Petroleum products and other liquids - Determination of flash point - Abel closed cup method
Application: The standard specifies a method for the determination of the closed cup flash point of petroleum products and other liquids having flash points between - 30 ^{o}C and +70 ^{o}C inclusive.
Exception: This standard is not applicable to water borne paints.

ISO 13758: 1996 Liquefied petroleum gases – Assessment of the dryness of propane – Valve freeze method
Application: The standard describes a procedure for the assessment of whether liquefied petroleum gas (LPG) consisting predominantly of propane and/or propene are sufficiently dry to avoid malfunction in pressure-reducing systems installed in domestic, industrial and automotive LPG applications

NS-EN-ISO 14935 1998: Petroleum and related products - of wick flame persistence of fire-resistant fluids
Application: The standard specifies a method for the assessment of the persistence of a flame applied to the edge of a wick of non-flammable material immersed in fire-resistant fluid, which may provide pertinent information for safe transportation and storage. This test does not ascertain the behaviour of a spray of fire-resistant fluid, for which ISO 15029 should be used.

1.3 Standards for conventional liquid fuels

API MPMS 6.3 Manual of Petroleum Measurement Standards Chapter 6 – Metering Assemblies. Section 3 – Service Station Metering Fuel – Dispensing Systems 1994

API RP 1626 Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations. 1985

API RP 1627 Storage and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations. R 1993

NS-EN 228: 1993 Automotive fuels – Unleaded Petrol – Requirements and test methods
Application: Specifies requirements and test methods for marketed and delivered unleaded petrol for use in petrol engine vehicles designed to run on unleaded petrol. The terms '% (m/m)' and '% (V/V)' are used to represent respectively the mass fraction and the volume fraction

NS-EN 590: 1993 Automotive fuels – Diesel – Requirements and test methods
Application: Specifies requirements and test methods for marketed and delivered automotive diesel fuel. The terms '% (m/m)' and '% (V/V)' are used to represent respectively the mass fraction and the volume fraction.

ISO 5165: 1998 Petroleum products - Determination of the ignition quality of diesel fuels – Cetane engine method

Application: Test method to decide the rating of diesel fuel oil in terms of arbitrary scale of cetane numbers.

BS 6843-0: 1988 Classification of petroleum fuels – General classification
Descriptors: Petroleum products, Fuels, Liquid fuels, Classification systems, Fossil fuels, Designations, Trading standards, TSS

NF M15-002: 1976 Liquid mineral fuels. Properties of H gasoline.
Descriptors: LIQUID FUELS, PETROLEUM PRODUCTS, AUTOMOTIVE FUELS, GASOLINE, SPECIFICATIONS

NF M15-005: 1994 Liquid mineral fuels. Performance requirements for supergasoline.
Descriptors: PETROLEUM PRODUCTS, LIQUID FUELS, DESIGNATION, CHARACTERISTICS, SPECIFICATIONS

NF M15-023: 1994 Liquid mineral fuels. Performance requirements for unleaded supergasoline.
Descriptors: PETROLEUM PRODUCTS, LIQUID FUELS, UNLEADED GASOLINE, DESIGNATION, CHARACTERISTICS, MARKING, OCTANE NUMBER

NFPA 30 Flammable and Combustible Liquids Code, 2000 ed.
Application: Storage, handling, and use of flammable and combustible liquids, including waste liquids, except fuel oil tanks and containers connected with oil burning equipment. Exception: Fuel storage at farms and isolated sites. The liquids are to have melting point lower than 37.8 ^{o}C.

NFPA 58 Liquefied Petroleum Gas Code
Application: The operation of all LP-Gas systems including the following: Containers, piping, and associated equipment when delivering LP-Gas to a building for use as a fuel gas, Highway transportation of LP-Gas, The design, construction, installation, and operation of marine terminals whose primary purpose is the receipt of LP-Gas for delivery to transporters, distributors, or users.
Exceptions: Marine terminals associated with refineries, petrochemicals, and gas plants. Marine terminals whose purpose is the delivery of LP-Gas to marine vessels.

2 Standards for Analysis and Engineering issues

2.1 General issues

ISO 14532: 2001 Natural gas – Vocabulary
Descriptors: Vocabulary, Natural gas, Gases, Gaseous fuels, Gas technology, Gas analysis, Symbols

ISO 15663-1: 2000 Petroleum and natural gas industries - Life cycle costing Part 1: methodology
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, PRODUCTION, ESTIMATION, VALUE ANALYSIS, LIFE CYCLES, MANAGEMENT

ISO 15663-3: 2001 Petroleum and natural gas industries - Life cycle costing Part 3: implementation guidelines
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, PRODUCTION, ESTIMATION, VALUE ANALYSIS, LIFE CYCLES, MANAGEMENT, MAINTENANCE, IMPLEMENTATION

NS-ISO 6184-4 1991: Explosion protection systems - Part 4: Determination of efficacy of explosion suppression systems
Application: the standard specifies a method for evaluating the effectiveness of explosion suppression systems against defined explosions in an enclosed volume. It gives the criteria for alternative test apparatus used to undertake explosion suppression efficacy test and criteria to be applied in defining the safe operating regime of an explosion suppression system.

NF EN 418: 1993 Safety of machinery; emergency stop equipment, functional aspects, principles for design
Descriptors: SAFETY OF MACHINES, ACCIDENT PREVENTION, SAFETY DEVICES, STOPPING, EMERGENCY MEASURES, DESIGN, SPECIFICATIONS

NF EN 457: 1992 Safety of machinery; auditory danger signals, general requirements, design and testing
Descriptors: HUMAN FACTORS ENGINEERING, WORK SAFETY, ACCIDENT PREVENTION, WORKROOM, HAZARDOUS AREAS, SIGNALLING, AUDIBILITY, AUDITORY THRESHOLD, DESIGN, SAFETY REQUIREMENTS, TESTS

EN 1127-1 1997: Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
Application: The standard specifies methods for the identification and assessment of hazardous situations leading to explosion and the design and construction measures appropriate for the required safety.

BS EN 1473: 1997 Installation and equipment for liquefied natural gas. Design of onshore installations
Descriptors: Liquefied natural gas, natural gas, Installation, Design, Production equipment, Stationary, Environment (working), Safety measures, Fire safety, Liquefaction of gases, Fuel storage, Tank (containers), etc.

NF EN 1594: 2000 Gas supply systems - Pipelines for maximum operating pressure over 16 bar - Functional requirements
Descriptors**:** Gas supply, Gas technology, Gas pipelines, Gas pipes, Pipelines, Pressure, Unalloyed steels, Low-carbon steels, Temperature

NF EN 1776: 1999 Gas supply. Natural gas measuring stations. Functional requirements.
Descriptors: Gas-supply meters, Gas supply, Natural gas, Measuring instruments, Measurement, Flow measurement, Data stations, Design, Commissioning, Maintenance, Performance, Industrial, Service pressure, Volume, Ratings, Calibration, Acceptance (approval), Density measurement, Calorific value, Safety measures, Performance testing, Testing conditions, Stability, Errors, Electronic equipment and components, Pipe work systems, Technical documents, Vibration, Pulsating flow, Equations, Conversion (units of measurement), Accuracy, Records (documents), Bibliography

ISO 8973: 1997 Liquefied petroleum gases – Calculation methods for density and vapour pressure
Application: The standard describes a simplified method for the calculation of density and vapour pressure of liquid petroleum gases (LPG) based on compositional data and density and vapour pressure factors for individual LPG components.

NS-EN 10208-2: Steel pipes for pipe lines for combustible fluids - Technical delivery conditions - Part 2. Pipes of requirement class B
Abstract: Specifies unalloyed and alloyed (except stainless) seamless and welded steel pipes for transmission of combustible fluids.

NF EN 12007-1: 2000 Gas supply system – Pipelines for maximum operating pressure up to and including 16 bar – Part 1: General functional recommendations
Descriptors: GAS DISTRIBUTION, GAS SUPPLY, GAS PIPELINES, DEFINITIONS, GASES, CHARACTERISTICS, MATERIALS, STEELS, POLYETHYLENE, DESIGN, PERFORMANCE EVALUATION, PRESSURE TESTS, QUALITY, MAINTENANCE, CORROSION PREVENTION

NF EN 12007-2: 2000 Gas supply system – Pipelines for maximum operating pressure up to and including 16 bar – Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)
Descriptors: GAS DISTRIBUTION, GAS SUPPLY, GAS PIPELINES, DEFINITIONS, GASES, CHARACTERISTICS, MATERIALS, STEELS, POLYETHYLENE, DESIGN, PERFORMANCE EVALUATION, PRESSURE TESTS, QUALITY, MAINTENANCE, CORROSION PREVENTION

NF EN 12007-3: 2000 Gas supply system – Pipelines for maximum operating pressure up to and including 16 bar – Part 3: Specific functional recommendations for steel
Descriptors: GAS DISTRIBUTION, GAS SUPPLY, GAS PIPELINES, DEFINITIONS, GASES, CHARACTERISTICS, MATERIALS, STEELS, POLYETHYLENE, DESIGN, PERFORMANCE EVALUATION, PRESSURE TESTS, QUALITY, MAINTENANCE, CORROSION PREVENTION

NF EN 12007-4: 2000 Gas supply system – Pipelines for maximum operating pressure up to and including 16 bar – Part 4: Specific functional recommendations for renovations
Descriptors: GAS DISTRIBUTION, GAS SUPPLY, GAS PIPELINES, DEFINITIONS, GASES, CHARACTERISTICS, MATERIALS, STEELS, POLYETHYLENE, DESIGN, PERFORMANCE EVALUATION, PRESSURE TESTS, QUALITY, MAINTENANCE, CORROSION PREVENTION

ISO 12213-1:1997 Natural gas. Calculation of compression factor. Part 1: Introduction and guidelines.
Descriptors: NATURAL GAS, COMPRESSED GAS, COMPRESSION, RULES OF CALCULATION, GENERALITIES

ISO 12213-2:1997 Natural gas. Calculation of compression factor. Part 2: Calculation using molar-composition analysis
Descriptors: NATURAL GAS, COMPRESSED GAS, COMPRESSION, RULES OF CALCULATION

ISO 12213-3:1997 Natural gas. Calculation of compression factor. Part 3: calculation using physical properties
Descriptors: NATURAL GAS, COMPRESSED GAS, COMPRESSION, RULES OF CALCULATION, PHYSICAL PROPERTIES

NF EN 12279: 2000 Gas supply systems – Gas pressure regulating installation on service lines – Functional requirements
Descriptors: GAS SUPPLY, GAS DISTRIBUTION, PRESSURE REGULATORS, DEFINITIONS, INSTALLATION, PRESSURE, INSPECTION, QUALITY ASSURANCE, SAFETY, DESIGN, STRESS ANALYSIS, SAFETY DEVICES, TESTS, MAINTENANCE

NF EN 12327: Gas supply system – Pressure testing, commisionning and decommisionning procedures – Functional requirements
Descriptors: GAS SUPPLY, GAS PIPELINES, INDUSTRIAL FACILITIES, CLASSIFICATIONS, DEFINITIONS, PRESSURE TESTS, PROCEDURE, PNEUMATIC TESTS, HYDROSTATIC TESTS, PRESSURE MEASUREMENT, LEAK DETECTION

UNE-EN 12583: 2001 Gas supply systems - Compressor stations - Functional requirements
Descriptors: Gas supply, Gas technology, Compressors, Gas pipelines, Operating conditions, Pressure, Design, Maintenance, Safety measures, Performance testing, Gas pipes, Equipment safety, Equipment housing facilities, Gases, Control devices, Safety devices

NF EN 12732: 2000 Gas supply system – Welding steel pipework – Functional requirements
Descriptors: GAS SUPPLY, GAS PIPELINES, STEEL TUBES, WELDING, PREPARATION, SETTING-UP CONDITIONS, QUALITY CONTROL, WELD DEFECTS, NONDESTRUCTIVE TESTS, DESTRUCTIVE TESTS, QUALIFICATION, PROCEDURE

ISO 13879:1999 Petroleum and natural gas industries - Content and drafting of a functional specification
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, CONTRACTS, SPECIFICATIONS, TECHNICAL WRITING

ISO 13880: 1999 Petroleum and natural gas industries - Content and drafting of a technical specification
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, SPECIFICATIONS, TECHNICAL DOCUMENTS, TECHNICAL WRITING, STRUCTURES

ISO/TR 13881:2000 Petroleum and natural gas industries - Classification and conformity assessment of products, processes and services
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, CLASSIFICATIONS, INDUSTRIAL PRODUCTS, PROCESS, SERVICES, CONFORMITY TESTS, QUALITY ASSURANCE, USER SUPPLIER RELATIONS

BS EN ISO 14111: 1999 Natural gas - Guidelines to traceability in analysis

Descriptors: Fuels, Gas analysis, Gaseous fuels, Chemical analysis and testing, Gases, Designations, Quality assurance, Control samples

ISO 14224: 1999 Petroleum and natural gas industries. Collection and exchange or reliability and maintenance data for equipment
Descriptors: Petroleum technology, Petroleum extraction, Industrial pipework systems, Natural gas, Natural gas extraction, Drilling (mineral extraction), Production, Petroleum refining, Reliability, Maintenance, Data, Quality, Quality assurance systems, Data acquisition, Quantitative analysis, Data analysis, Data integrity, Computer applications, Management, Data transfer, Information exchange, Information retrieval, Computer software, Data recording, Classification systems, Data organization, Data structures, Boundaries, Design, Identification methods, Equipment safety, Failure (quality control), Coded representation, Tables (data), Databases, Taxonomy, Ignition systems (internal combustion engines), Compressors, Control systems, Electric generators, Electric motors, Fire detectors, Gas detectors, Gas turbines, Heat exchangers, Probes, Pumps, Valves, Wells, Environment (working), Quality control, Verification, Technical data sheets

ISO 14532: 2001 Natural gas – Vocabulary
Descriptors: Vocabulary, Natural gas, Gases, Gaseous fuels, Gas technology, Gas analysis, Symbols

ISO 15663-1: 2000 Petroleum and natural gas industries - Life cycle costing Part 1: methodology
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, PRODUCTION, ESTIMATION, VALUE ANALYSIS, LIFE CYCLES, MANAGEMENT

ISO 15663-3: 2001 Petroleum and natural gas industries - Life cycle costing Part 3: implementation guidelines
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, PRODUCTION, ESTIMATION, VALUE ANALYSIS, LIFE CYCLES, MANAGEMENT, MAINTENANCE, IMPLEMENTATION

API RP 1637 Using the API Colour-Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals, second Edition Supplement 1995

API S 4498 Survey and Analysis of Liquid Gasoline Released to the Environment During Vehicle Refuelling at Service Stations

2.2 Hydrogen fuel – standards for engineering and requirements

NFPA 50 A Standard for Gaseous Hydrogen Systems at Consumer Sites, 1999 ed.
Application: The standard covers the requirements for the installation of gaseous hydrogen systems on consumer premises where the hydrogen supply to the consumer premises originates outside the consumer premises and is delivered by mobile equipment.
Exception: Containers having less than 400 scf (11m^3), but not when having individual systems with containers less than 400 scf located less than 5 ft (1.5 m) from each other.

NFPA 50 B Standard for Liquefied Hydrogen Systems at Consumer Sites, 1999 ed.
Application: The standard covers the requirements for the installation of liquid hydrogen systems on consumer premises where the hydrogen supply to the consumer premises originates outside the consumer premises and is delivered by mobile equipment.
Exception: Portable containers having a total liquefied hydrogen content of less than 39.7 gal (150 l), and manufacturers of liquefied hydrogen, storing and refilling portable containers, trailers, mobile supply trucks, or tank cars.

ISO 13984: 1999 Liquid hydrogen. Land vehicle fuelling system interface.
Descriptors: LAND VEHICLES, REFUELLING, HYDROGEN, FILLING DEVICES, PIPING, STORAGE TANKS, INTERFACES, SPECIFICATIONS, SAFETY REQUIREMENTS, TESTS, PRESSURE TESTS, LEAK TESTS, INSPECTION, ACCEPTABILITY

ISO 13985-1 Liquid Hydrogen – Land vehicle fuel tanks – Part 1: Design, fabrication, inspection and testing

ISO 13985-2 Liquid Hydrogen – Land vehicle fuel tanks – Part 2: Installation and maintenance

ISO 15869-3 Gaseous hydrogen and hydrogen blends – Land vehicle fuel tanks – Part 3: Particular requirements for hoop wrapped composite tanks with a metal liner

ISO 15869-4 Gaseous hydrogen and hydrogen blends – Land vehicle fuel tanks – Part 4: Particular requirements for fully wrapped composite tanks with a metal liner

ISO 15869-5 Gaseous hydrogen and hydrogen blends – Land vehicle fuel tanks – Part 5: Particular requirements for fully wrapped composite tanks with a non-metal liner

ISO/WD TR 15916 Basic considerations for the safety of hydrogen systems

3 Standards for mechanical equipment

3.1 Standards for components for CNG fuel

NFPA 52 Compressed Natural Gas (CNG). Vehicular Fuel Systems Code, 1998 ed.
Application: The design and installation of compressed natural gas (CNG) engine fuel systems on vehicles of all types, including the following: Original equipment manufacturers, vehicle converters, vehicle fuelling (dispensing) systems.
Exception: Vehicle and fuel supply containers complying with Federal Motor Vehicle Safety Standards covering the installation of CNG fuel systems on vehicles and certified by the respective manufacturer as meeting these standards.

ISO/DIS 14469: Road vehicles – Compressed natural gas (CNG) refuelling connector
Descriptors: Road vehicles, Gas-powered devices, Natural gas, Compressed gases, Road vehicle components, Filling devices, Flexible pipes, Pipe couplings, Pipe connections, Pipe fittings, Filler caps, Engine fuel systems, Marking, Grades (quality), Performance, Service pressure, Dimensions, Life (durability), Safety devices, Performance testing, Pressure testing, Leak tests, Flow measurement, Mechanical testing, Drop tests, Endurance testing, Corrosion tests, Stress corrosion, Gas-resistance tests, Ignitability, Test equipment, Testing conditions, Quality control, Vehicles, Maintainability

ISO 15500-1 2000 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 1: General requirements and definitions
Descriptors: Road vehicles, Road vehicle components, Natural gas, Compressed gases, Motor vehicles, Design, Instructions for use, Liquefied petroleum gas, Marking, Definitions

ISO 15500-2 2000 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 2: Performance and general test methods
Descriptors: Road vehicles, Road vehicle components, Natural gas, Compressed gases, Gases, Motor vehicles, Fuels, Pressure, Service pressure, Performance testing, Mechanical testing

ISO 15500-3 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 3: Check valve
Descriptors: Road vehicles, Road vehicle components, Check valves, Natural gas, Compressed gases, Gases, Motor vehicles, Fuels, Pressure, Service pressure, Mechanical testing

ISO 15500-4 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 4: Manual valve
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, ENGINE VALVES, SPECIFICATIONS, TESTS, MARKING

ISO 15500-5 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 5: Manual cylinder valve
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, ENGINE VALVES, SPECIFICATIONS, TESTS, MARKING

ISO 15500-6 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 6: Automatic valve
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, ENGINE VALVES, SPECIFICATIONS, TESTS, MARKING

ISO/DIS 15500-7 Road vehicles – Compressed natural gas (CNG) fuel system components – Part 7: Gas injection
Descriptors:

ISO 15500-8 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 8: Pressure indicator
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, PRESSURE GAUGES, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-9 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 9: Pressure regulator
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, PRESSURE REGULATORS, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-10 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 10: Gas-flow adjuster

Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, FLOW REGULATORS, SPECIFICATIONS, PERFORMANCE EVALUATION, JOINING, TESTS, MARKING

ISO 15500-11 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 11: Gas/air mixer
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-12 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 12: Pressure relief valve (PRV)
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, SAFETY VALVES, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-13 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 13: Pressure relief device (PRD)
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, SAFETY DEVICES, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-14 2001 Road vehicles – Compressed natural gas (CNG) fuel system components – Part 14: Excess flow valve
Descriptors:

ISO 15500-15 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 15: Gas-tight housing and ventilation hose
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, GAS CYLINDERS, PIPES : TUBES, VENTILATION, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-16 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 16: Rigid fuel line
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, PIPING, GAS PIPES, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-17 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 17: Flexible fuel line
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, PIPING, GAS PIPES, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-18 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 18: Filter
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, FILTERS, FUEL FILTERS, SPECIFICATIONS, JOINING, TESTS, MARKING

ISO 15500-19 2001 Road vehicles -- Compressed natural gas (CNG) fuel system components -- Part 19: Fittings
Descriptors: ROAD VEHICLES, FUELS, NATURAL GAS, COMPRESSED GAS, COMPONENTS, PIPE FITTINGS, SPECIFICATIONS, JOINING, TESTS, MARKING

3.2 Standards for Cryogenics

BS EN 1251-1 2000: Cryogenic vessels. Transportable vacuum insulated vessels of not more than 1000 litre volume. Part 1: Fundamental requirements
Descriptors: Cryogenic equipment, Cryogenic pressure vessels, Transportable, Vacuum insulation, Volume, Atmospheric pressure, Toxicity, Gases, Mechanical properties of materials, Loading, Corrosion, Testing conditions, Temperature, Design, Marking

BS EN 1251-2 2000: Cryogenic vessels. Transportable vacuum insulated vessels of not more than 1000 litre volume. Part 2: Design, fabrication, inspection and testing
Descriptors: Cryogenic equipment, Cryogenic pressure vessels, Transportable, Vacuum insulation, Volume, Design, Inspection, Approval testing, Non-destructive testing, Radiographic testing, Surfaces, Defects, Stress analysis, Elastic deformation, Welding, Flammable materials, Fluids, Jackets (insulation)

BS EN 1251-3 2000: Cryogenic vessels. Transportable vacuum insulated vessels of not more than 1000 litre volume. Part 3: Operational requirements
Descriptors: Cryogenic equipment, Cryogenic pressure vessels, Transportable, Vacuum insulation, Volume, Filling, Transportation, Transportation safety, Storage, Maintenance, Inspection, Emergency measures, Safety measures

BS EN 1252-1 1998: Cryogenic vessels. Materials. Toughness requirements for temperatures below – 80 °C.
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Low temperatures, Temperature, Steels, Low-temperature testing, Impact strength, Strength of materials, Impact testing, Test specimens, Aluminium, Aluminium alloys, Copper, Copper alloys, Acceptance (approval), Approval testing

BS EN 1252-2 2001: Cryogenic vessels. Materials. Toughness requirements for temperatures between– 80 and – 20 °C.
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Low temperatures, Toughness, Metals, Steels, Alloy steels, Low-alloy steels, Aluminium, Aluminium alloys, Copper, Copper alloys, Austenitic steels, Stainless steels, Strength of materials

BS EN 1626: 1999 Cryogenic vessels. Valves for cryogenic service
Descriptors: Pressure vessels, Cryogenic equipment, Cryogenics, Valves, Design, Performance testing, Temperature, Starting, Stopping, Size, Preferred sizes, Vacuum-operated devices, Service pressure, Metals, Hardness, Corrosion resistance, Compatibility, Oxygen, Flammable atmospheres, Mechanical testing, Type testing, Test specimens, Testing conditions, Test equipment, Environmental testing, Strength of materials, Leak tests, Marking

BS EN 1797: 2001 Cryogenic vessels. Gas/material compatibility
Descriptors: Cryogenic equipment, Pressure vessels, Cryogenics, Gases, Compatibility, Oxygen, Liquid air, Metals, Non-metals, Pressure testing, Chemical-resistance tests, Combustion test methods, Thermal insulating materials

BS EN 12213: 1999 Cryogenic vessels. Methods for performance evaluation of thermal insulation

Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Cooling equipment, Heat loss, Thermal insulation, Thermal measurement, Performance, Testing conditions, Formulae (mathematics), Data handling, Bibliography, Conversion (units of measurement), Flow measurement, Gases, Error correction, Temperature measurement, Pressure measurement (fluids)

BS EN 12300: 1999 Cryogenic vessels. Cleanliness for cryogenic service
Descriptors: Cryogenics, Pressure vessels, Cryogenic equipment, Cleaning, Contamination, Surfaces, Inspection, Storage, Packaging, Marking, Certificates of conformity, Visual inspection (testing), Natural lighting, Light, Ultraviolet radiation, Solvents, Weight measurement, Volume measurement

BS EN 12434: 2000 Cryogenic vessels. Cryogenic flexible hoses
Descriptors: Cryogenic equipment, Cryogenics, Design, Construction, Product tests, Type testing, Marking, Operating conditions, Temperature, Pressure, Size, Terminal fittings, Mechanical testing

PR EN 12456 Cryogenic vessels. Pressure protection devices for vacuum insulated cryogenic vessels outer jackets
Descriptors: Cryogenics, Pressure vessels, Bursting discs, Safety devices, Pressure control, Design

BS EN 13275: 2000 Cryogenic vessels. Pumps for cryogenic service
Descriptors: Cryogenic equipment, Pumps, Cryogenics, Cooling equipment, Pressure vessels, Low temperatures, Fluid equipment, Design, Type testing, Performance testing, Cryogenic liquids, Oxygen

EN 13371:2002 Cryogenic vessels. Couplings for cryogenic service
Descriptors: Cryogenic pressure vessels, Pressure vessels, Design, Type testing, Testing conditions, Pressure testing, Leak tests, Refrigeration

EN 13458-1 Cryogenic vessels. Static vacuum insulated vessels. Part 1: Fundamental requirements
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Static pressure vessels, Vacuum devices, Pressure, Cryogenic liquids, Design, Marking

EN 13458-2 Cryogenic vessels. Static vacuum insulated vessels. Part 2: Design, fabrication, inspection and testing
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Static pressure vessels, Design, Pressure, Dimensions

EN 13458-3 Cryogenic vessels. Static vacuum insulated vessels. Part 3: Operational requirements
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Static pressure vessels, Vacuum devices, Installation, Inspection, Maintenance, Emergency measures

EN 13530-1 Cryogenic vessels. Large transportable vacuum insulated vessels. Part 1: Fundamental requirements
Descriptors: Cryogenics, Cryogenic equipment, Pressure vessels, Transportable, Vacuum insulation, Cryogenic liquids, Low temperatures, Service pressure, Performance, Performance testing, Mechanical testing, Marking

EN 13530-2 Cryogenic vessels. Large transportable vacuum insulated vessels. Part 2: Design, fabrication, inspection and testing (fixed tank (tank vehicles) and demountable tanks)
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Transportable, Vacuum insulation, Design, Production processes, Inspection, Performance testing, Approval testing, Tanks (containers), Road vehicles, Road tankers, Cryogenic liquids

EN 13530-3 Cryogenic vessels. Large transportable vacuum insulated vessels. Part 3: Operational requirements
Descriptors: Cryogenic equipment, Cryogenics, Pressure vessels, Transportable, Vacuum insulation, Filling, Position, Transportation, Maintenance, Inspection, Safety measures, Emergency measures, Cryogenic liquids, Training, Acceptance (approval)

EN 13648-1:2002 Cryogenic vessels. Safety devices for protection against excessive pressure. Part 1: Safety valves for cryogenic service.

Descriptors: Cryogenics, Pressure vessels, Safety devices, Safety valves, Pressure, Design, Production, Mechanical testing, Cryogenic liquids, Temperature, Gases, Vapours

EN 13648-2:2002 Cryogenic vessels. Safety devices for protection against excessive pressure. Part 2: Bursting disc safety devices for cryogenic service
Descriptors: Cryogenics, Pressure vessels, Bursting discs, Safety devices, Pressure, Design, Production, Mechanical testing, Cryogenic liquids, Temperature, Gases, Vapours

EN 13648-3:2002 Cryogenic vessels. Safety devices for protection against excessive pressure. Part 3: Determination of required discharge. Capacity and sizing
Descriptors: Cryogenics, Pressure vessels, Bursting discs, Safety valves, Safety devices, Mathematical calculations, Mass, Heat, Flow measurement, Volume measurement

PR EN14197-1 2001: Cryogenic vessels. Static non-vacuum insulated vessels. Part 1: Fundamental requirements
Descriptors: Cryogenic equipment

PR EN14197-2 2001: Cryogenic vessels. Static non-vacuum insulated vessels. Part 2: Design, fabrication, inspection and testing
Descriptors: Cryogenic equipment, Containers

PR EN14197-3 2001: Cryogenic vessels. Static non-vacuum insulated vessels. Part 3: Operational requirements
Descriptors: Cryogenic equipment, Containers

3.3 Other mechanical equipment and components

BSI BS 7117-1: 1 1991 Metering Pumps and Dispensers to Be Installed at Filling Stations and Used to Dispense Liquid Fuel Part 1: Specification for Construction (Q)
Abstract: Requirements for dispensing, under pressure, liquid fuels which are flammable liquids having flash points not exceeding 100°C. Particular attention is given to mechanical, hydraulic, and electrical equipment installed within, or mounted on the metering pump/dispenser housing.

BSI BS 7117-1: 1991 Amd 1 Metering Pumps and Dispensers to Be Installed at Filling Stations and Used to Dispense Liquid Fuel Part 1: Specification for Construction (AMD 8351) August 15, 1994 (Q)

BSI BS 7117-1: 1991: Amd 2 Metering Pumps and Dispensers to Be Installed at Filling Stations and Used to Dispense Liquid Fuel Part 1: Specification for Construction AMD 9428 January 15, 1997 (L)

BSI BS 7117-2: 1991 Metering Pumps and Dispensers to Be Installed at Filling Stations and Used to Dispense Liquid Fuel Part 2: Guide to Installation (Q)
Abstract: Includes hydraulic, mechanical and electrical equipment connections into and out of metering pumps/dispensers constructed in accordance with BS 7117-1

BSI BS 7117-3: 1991 Amd 1 Metering Pumps and Dispensers to Be Installed at Filling Stations and Used to Dispense Liquid Fuel Part 3: Guide to Maintenance After Installation (AMD 8350) August 15, 1994 (L)
Abstract: General guidance for pumps/dispensers standing on prepared foundations. Includes certification continuity of reworked/refurbished equipment and suggests a training syllabus for staff. To be read in conjunction with BS 7117-1 and BS 7117-2

NF ISO 9158: 1988 Road vehicles. Nozzle spouts for unleaded gasoline.
Descriptors: ROAD VEHICLES, REFUELLING, NOZZLE SPOUTS, GASOLINE, UNLEADED GASOLINE, FUEL HANDLING EQUIPMENT, FITTING, DIMENSIONS, FLOW RATE

NF ISO 9159: 1988 Road vehicles. Nozzle spouts for leaded gasoline and diesel fuel
Descriptors: ROAD VEHICLES, REFUELLING, NOZZLE SPOUTS, GASOLINE, DIESEL FUELS, FUEL HANDLING EQUIPMENT, FITTING, DIMENSIONS, FLOW RATE

ISO 9809-1:1999: Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 Mpa
Descriptors: STEEL PRODUCTS, DEFINITIONS, MATERIALS, HEAT TREATMENT, CHEMICAL COMPOSITION, INSPECTION, DESIGN, COMPUTATION, MANUFACTURING, DEFECTS, TESTS, CONFORMITY TESTS, TYPE TESTING : TESTS, ACCEPTANCE TESTING, ACCEPTABILITY, MARKING

ISO 9809-2: 2000: Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 Mpa
Descriptors: STEEL PRODUCTS, TENSILE STRENGTH, DEFINITIONS, MATERIALS, CHEMICAL COMPOSITION, COMPOSITIONAL TOLERANCES, HEAT TREATMENT, DESIGN, COMPUTATION, MANUFACTURING, TESTS, PRESSURE TESTS, HYDRAULIC TESTS, BREAKING, TENSION TESTS, CONFORMITY TESTS, ACCEPTABILITY, CERTIFICATION, MARKING

ISO 9809-3: 2000: Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 3: Normalized steel cylinders
Descriptors: PRESSURE VESSELS, STEEL PRODUCTS, DEFINITIONS, SYMBOLS, MATERIALS, HEAT TREATMENT, CHEMICAL COMPOSITION, INSPECTION, DESIGN, COMPUTATION, MANUFACTURING, DEFECTS, TESTS, HYDRAULIC TESTS, PRESSURE TESTS, MECHANICAL TESTS, IMPACT TESTS, CONFORMITY TESTS, TYPE TESTING : TESTS, ACCEPTANCE TESTING, ACCEPTABILITY, MARKING

NF EN ISO 10439: 2003 Petroleum, chemical and gas service industries - compressors
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS, COMPRESSORS, CENTRIFUGAL COMPRESSORS, DEFINITIONS, DESIGN, ACCESSORIES, INSPECTION, TESTS, PERFORMANCE TESTS, LEAK TESTS, TECHNICAL DATA SHEETS, USER SUPPLIER RELATIONS

ISO 10440-1:2000 Petroleum and natural gas industries – Rotary-type positive displacement compressors – Part 1: Process compressors (oil-free)
Application: The standard specifies requirements and gives recommendations for helical, spiral and straight lobe rotary compressors used for vacuum or pressure, or both , for use in the petroleum and natural gas industries.
Exception: Standard air compressors, liquid ring compressors, vane-type compressors, or compressors in oxygen-bearing gas service using flammable liquid for injection of flooding.

NF EN ISO 11105: 1997 Small craft. Ventilation of petrol engine and/or petrol tank compartment
Descriptors: YACHTS, INTERNAL COMBUSTION ENGINES, TANKS : CONTAINERS, GASOLINE, VENTILATION, DEFINITIONS, SAFETY, EXPLOSION PROOFING, FIRE PROTECTION, VENTILATORS, LABELLING, GRAPHIC SYMBOLS

ISO 11119-1: Gas cylinders of composite construction – Specification and test methods – Part 1: Hoop wrapped composite cylinders

ISO 11119-2: Gas cylinders of composite construction - Specification and test methods Part 2: Fully wrapped fibre reinforced gas cylinders with load-sharing metal liners

ISO 11119-3: Gas cylinders of composite construction - Specification and test methods Part 2: Fully wrapped fibre reinforced gas cylinders with non-load-sharing metal liners or non-metallic liners

BS-EN-ISO 11439: 2000 Gas cylinders. High pressure cylinders for the on-board storage of natural Gas as a fuel for automotive vehicles
Application: Road vehicles, Road vehicle components, Road vehicle engineering, Gas storage, Gas-powered devices, Gas cylinders, Re-usable, Pressure vessels, Gaseous fuels, Compressed Gases, Natural Gas, fuel storage, Steels, Aluminium, Non-metals, Designations, Classification systems

NF EN 13012: 2002 Petrol filling stations – Specification for the construction and performance of automatic nozzles for use on fuel dispensers

Descriptors: ROAD VEHICLES, REFUELLING, NOZZLE SPOUTS, GASOLINE, DIESEL FUELS, FUEL HANDLING EQUIPMENT, SPECIFICATIONS, PHYSICAL PROPERTIES, PERFORMANCE EVALUATION, TESTS, MARKING

DIN EN 13483 Hoses and hose assemblies with internal recovery for measured fuel dispensing systems – Specification

PR NF EN 13617-1 Automotive LPG filling system – Part 1: dimensions and test requirements for the connector
Descriptors: FILLING DEVICES, FUEL HANDLING EQUIPMENT, LIQUEFIED PETROLEUM GASES, ROAD VEHICLES, VEHICLE FUEL TANKS, CONNECTORS, DEFINITIONS, DESIGN, TESTS, BURST TESTS, LEAK TESTS, FATIGUE TESTS, SHOCK RESISTANCE, CORROSION RESISTANCE, DROP TESTS, FREEZE-THAW RESISTANCE, TESTING CONDITIONS, MARKING

DIN EN 13617-2 Petrol filling stations – Part 2: Construction and performance of safe breaks for use on dispensers

DIN EN 13617-3 Petrol filling stations – Part 3: Construction and performance of shear valves
Descriptors: FUEL HANDLING EQUIPMENT, MOTOR FUELS, FITTINGS, SAFETY DEVICES, ACCIDENT PREVENTION, ENVIRONMENTAL PROTECTION, EXPLOSION PROOFING, DEFINITIONS, SAFETY MEASURES, CLASSIFICATIONS, PHYSICAL PROPERTIES, TESTS, TYPE TESTING : TESTS, MARKING

NF EN ISO 13631: 2003 Petroleum and natural gas industries - Packaged reciprocating gas compressors
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, COMPRESSORS, DEFINITIONS, DESIGN, MATERIALS, MANUFACTURING, COOLING, PRESSURE VESSELS, PIPELINES, ACCESSORIES, ELECTRIC CIRCUITS, STOPPING DEVICES, WARNING SYSTEMS, INSPECTION, FLOW RATE, TESTS, PERFORMANCE TESTS, HYDRAULIC TESTS, LEAK TESTS, PAINTS, PREPARATION, TRANSPORTATION, MARKING, USER SUPPLIER RELATIONS

PR NF EN 13638: 1999 NGV filling stations
Descriptions: ROAD VEHICLES, REFUELLING, NATURAL GAS, DESIGN, PERFORMANCE EVALUATION, FUEL HANDLING EQUIPMENT, SPECIFICATIONS, SAFETY REQUIREMENTS, TESTS

ISO 13707: 2000 Petroleum and natural gas industries – Reciprocating Compressors
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS, COMPRESSORS, DEFINITIONS, DESIGN, ACCESSORIES, INSPECTION, TESTS, TRANSPORTATION, TECHNICAL DATA SHEETS, USER SUPPLIER RELATIONS

ISO 13847: 2000 Petroleum and natural gas industries - Pipeline transportation systems - Welding of pipelines
Descriptors: Petroleum industry, natural gas industry, oil pipelines, gas pipelines, steel tubes, welding, arc welding, manual metal arc welding, gas shielded welding, tig welding, welders (personnel), procedure, qualification, inspection, nondestructive tests, radiographic analysis, ultrasonic tests, weld defects, acceptability, repairs

ISO 15649: 2001 Petroleum and natural gas industries - Piping
Descriptors: PETROLEUM INDUSTRY, NATURAL GAS INDUSTRY, PIPING, DEFINITIONS, BURIED PIPES, MATERIALS, DESIGN, SPECIFICATIONS, TESTS

4 Electrical equipment for explosive atmospheres

NF EN 50014: 1999: Electrical apparatus for potentially explosive atmospheres – General requirements.
Amendment A2: 1999 to EN 50014:1997

Amendment A1: 1999 to EN 50014 :1997
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, SAFETY REQUIREMENTS, EXPLOSION PROOFING, FLAMEPROOF ENCLOSURES, DEFINITIONS, TEMPERATURE, CLASSIFICATIONS, MATERIALS, METALS, LIGHT ALLOYS, CABLE LEAD-IN, ROTATING ELECTRIC MACHINES, SWITCHGEAR, ISOLATING SWITCHES, ELECTRIC OUTLETS, LUMINAIRES, MECHANICAL TESTS, THERMAL TESTS, DEGREE OF PROTECTION, INSULATION RESISTANCE, VERIFICATION, MARKING, INSTRUCTIONS

NF EN 50015:1999 Electrical apparatus for potentially explosive atmospheres – Oil immersion "o"
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, O PROTECTION, DEFINITIONS, TESTS, TYPE TESTING : TESTS, MARKING

EN 50016 1998: Electrical apparatus for potentially explosive atmospheres – Pressurisation apparatus 'p'
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, EXPLOSION PROOFING, P PROTECTION, PRESSURE, TESTS, VERIFICATION, MARKING

NF EN 50017:1999 Electrical apparatus for potentially explosive atmospheres – Powder filling "q"
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, EXPLOSION PROOFING, Q PROTECTION, ELECTRIC ENCLOSURES, DEGREE OF PROTECTION, MATERIALS, FILLING, DEFECTS, LEAKAGE PATHS, VERIFICATION, TYPE TESTING : TESTS, DIELECTRIC STRENGTH TESTS, FLAMMABILITY, MARK

NF EN 50018 1996: Electrical apparatus for potentially explosive atmospheres – Flameproof enclosure 'd'
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, FLAMEPROOF ENCLOSURES, D PROTECTION, DEFINITIONS, SPECIFICATIONS, JOINTS, DIMENSIONS, VERIFICATION, TESTS

NF EN 50019 1996: Electrical apparatus for potentially explosive atmospheres – Increased safety 'e'
Descriptors: ELECTRIC EQUIPMENT, SAFETY REQUIREMENTS, EXPLOSION PROOFING, E SAFETY, VERIFICATION, TESTS, MARKING

NF EN 50020 1995: Electrical apparatus for potentially explosive atmospheres – Intrinsic safety 'i'
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, EXPLOSION PROOFING, VERIFICATION, TESTS, MARKING

NF EN 50021:1999 Electrical apparatus for potentially explosive atmospheres – Type of protection "n"
Descriptors: ELECTRIC EQUIPMENT, PROTECTION, EXPLOSIVE ATMOSPHERES, DEFINITIONS, SPECIFICATIONS, DEGREE OF PROTECTION, CHARACTERISTICS, ELECTRICAL INSULATION, TESTS, THERMAL TESTS, ELECTRIC ENDURANCE TESTS, MARKING

NF EN 50028 1987: Electrical apparatus for potentially explosive atmospheres – Encapsulation type 'm'
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, EXPLOSION PROOFING, THERMOSETTING RESINS, BUILDING CODES, TESTS, DIELECTRIC STRENGTH TESTS, WATER ABSORPTION TESTS, THERMAL TESTS, CYCLIC TESTS, MECHANICAL TESTS, TENSION TESTS, ELECTRICAL TESTS, MARKING

EN 50054:1998 Electrical apparatus for the detection and measurement of combustible gases – Performance requirements for Group I apparatus indicating up to 5 % (v/v) methane in air
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, MINES WITH FIRE-DAMP HAZARDS, DETECTORS, FLAMMABLE GASES, SAFETY REQUIREMENTS, EXPLOSION PROOFING, TESTING CONDITIONS, DEFINITIONS, WARNING SYSTEMS

EN 50056:1998 Electrical apparatus for the detection and measurement of combustible gases – Performance requirements for Group I apparatus indicating up to 100 % (v/v) methane in air
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, DETECTORS, CONCENTRATION, FLAMMABLE GASES, SPECIFICATIONS, CHARACTERISTICS

EN 50057:1992 Electrical apparatus for the detection and measurement of combustible gases – Performance requirements for Group II apparatus indicating up to 100 % lower explosive limit
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, MINES WITH FIRE-DAMP HAZARDS, DETECTORS, FLAMMABLE GASES, FIRE PROTECTION, CHARACTERISTICS

EN 50058:1992 Electrical apparatus for the detection and measurement of combustible gases – Performance requirements for Group II apparatus indicating up to 100 % (v/v) gas
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, DETECTORS, CONCENTRATION, FLAMMABLE GASES, SPECIFICATIONS, CHARACTERISTICS

EN 50303 : Electrical Apparatus for potentially explosive atmosphere – equipment Group I Category M1
Descriptors: ELECTRICAL INSTALLATION, ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, MINES WITH FIRE-DAMP HAZARDS, DEFINITIONS, SPECIFICATIONS, DESIGN, ELECTRIC CABLES, ELECTRIC ENCLOSURES, ELECTROSTATIC PROTECTION, TEMPERATURE RISE, LIMITS, TESTS, TYPE TESTING : TESTS, MARKING

EN 60079-10: 1997 Electrical Apparatus for potentially explosive atmosphere – Part-10-Classification of hazardous areas for gases
Descriptors: ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, FLAMMABLE GASES, DEFINITIONS, REGIONS, FILING, SAFETY, EXPLOSION PROOFING, VENTILATION

EN 60079-14: 1999 Electrical Apparatus for potentially explosive atmosphere – Part-14-Selection, installation, maintenance and repair of electrical apparatus for use in hazardous areas
Descriptors: ELECTRICAL INSTALLATION, ELECTRIC EQUIPMENT, EXPLOSIVE ATMOSPHERES, FLAMMABLE GASES, DEFINITIONS, CATEGORIES, HAZARDOUS AREAS, EQUIPMENT PROTECTION, EXPLOSION PROOFING, DESIGN, TEMPERATURE, ELECTRIC CABLES, FLAMEPROOF ENCLOSURES, FLAME PROPAGATION, E SAFETY, DEGREE OF PROTECTION

5 Other codes and standards

Doc. 06/93/E Safety in storage, handling and distribution of liquid hydrogen

Doc. 15/96/EFD Gaseous hydrogen stations

Tn. 26/81/E Hydrogen cylinders and transport vessels

5.1 NORSOK standards

E-001 Electrical Systems

I-001 Field Instrumentation
I-002 Safety and Instrumentation Systems

P-001 Process Design
P-100 Process Systems

R-001 Mechanical Equipment

R-100 Mechanical Equipment Selection

S-001 Technical Safety

5.2 Dutch codes

CPR 17.1 Fuelling stations

CPR 17.2 Parking of CNG vehicles and repair garages for CNG

CPR 17.3 In-house fuelling of CNG vehicles