



THE REPUBLIC OF UGANDA

**MINISTRY OF ENERGY AND MINERAL
DEVELOPMENT**



**UGANDA NATIONAL BUREAU OF
STANDARDS**

**UGANDA NATIONAL BUREAU OF STANDARDS
AND
MINISTRY OF ENERGY & MINERAL
DEVELOPMENT**

**CATALOGUE OF UGANDA STANDARDS ON
PETROLEUM**

OCTOBER 2016

Introduction

1.1 Background

Intensified exploration and appraisal work in the Albertine Graben of Uganda led to the confirmation of the existence of commercial resources of petroleum in the country in 2006. By the end of 2014, the estimated resources in the country had reached 6.5 billion barrels of oil in place with approximately 1.4 billion recoverable (1 barrel is equivalent to 159 litres). The current in place gas volumes in the country are 499BCF of non-associated gas resources with 328BCF estimated to be recoverable.

The National Oil and Gas Policy of Uganda was approved by Cabinet on 31st January, 2008 to guide the development of the country's emerging oil and gas sector. The government has since put in place a number of initiatives to promote the exploration, development and production of the discovered resources and management of petroleum products in Uganda.

In order to support the government program of achieving the Policy goal, the Uganda National Bureau of Standards (UNBS) and the Ministry of Energy & Mineral Development (MEMD) initiated the process of development of standards for the entire petroleum value chain.

Uganda currently imports all its petroleum products requirements from overseas. In order to guide the importation of products and foster local production of petroleum, there was need to develop a wide range of standards for the petroleum sector. Uganda aims to utilize the discovered petroleum resources in transforming the economy and also for the petroleum products to access international markets.

Standards provide detailed characteristics of processes, products and services which may not be included in the law or regulations. Standards help regulators, producers and consumers know what is expected or required. Therefore, the standards will play an important role in streamlining and regulating the petroleum industry.

Standards are developed through technical committee following a process that is governed by international principles of openness, and transparency.

1.2 TC16 history

UNBS/TC 16-Petroleum was established early 2009 and at that time, it had focused on developing standards for the downstream sector, mainly petroleum products such as petrol, diesel, kerosene, JET A - 1, lubricants and engine oil and standards for facilities like depots, fuel stations, and fuel road trucks, to be used to assess compliance to set regulatory requirements.

In 2013, TC16 was re-structured and expanded to develop standards for the entire petroleum value chain i.e. including upstream and mid-stream activities. To undertake this role, its work programme was to initiate the development of a coherent framework of national standards for the petroleum sector.

Annex IV_Standards published under UNBS/TC 16- Petroleum

This catalogue highlights the list of Standards published under UNBS/TC 16- Petroleum since commencement of its work.

TC 16/SC 1: PETROLEUM & PETROCHEMICAL PRODUCTS

1. US ISO 20847:2004, Petroleum products — Determination of sulfur content of automotive fuels — Ultraviolet fluorescence method

This Uganda Standard specifies an energy dispersive X-ray fluorescence (EDXRF) test method for the determination of the sulfur content of motor gasolines, including those containing up to 2.7 % (m/m) oxygen, and of diesel fuels, including those containing up to 5 % (V/V) fatty acid methyl ester (FAME), having sulfur contents in the range 30 mg/kg to 500 mg/kg. Other products may be analysed and other sulfur contents may be determined according to this test method; however, no precision data for products other than automotive fuels and for results outside the specified range have been established for this standard. **STATUS: VOLUNTARY PRICE: 35,000**

2. US ISO 20846:2004, Petroleum products — Determination of sulfur content of automotive fuels — Ultraviolet fluorescence method

This Uganda Standard specifies an ultraviolet (UV) fluorescence test method for the determination of the sulfur content of motor gasolines, including those containing up to 2,7 % (m/m) oxygen, and of diesel fuels, including those containing up to 5 % (V/V) fatty acid methyl ester (FAME), having sulfur contents in the range 3 mg/kg to 500 mg/kg. Other products may be analysed and other sulfur contents may be determined according to this test method; however, no precision data for products other than automotive fuels and for results outside the specified range have been established for this standard. **STATUS: VOLUNTARY PRICE: 35,000**

3. US ISO 14596:2007, Petroleum products — Determination of sulfur content — Wavelength dispersive X-ray fluorescence spectrometry

This Uganda Standard specifies a method for the determination of the sulfur content of liquid petroleum products, additives for petroleum products, and semi-solid and solid petroleum products that are either liquefied by moderate heating or soluble in organic solvents of negligible or accurately known sulfur content.

The method is applicable to products or additives having sulfur contents in the range 0,001 % (m/m) to 2, 50 % (m/m); higher contents can be determined by appropriate dilution. Other elements do not interfere at concentrations anticipated in the materials subject to this analysis. **STATUS: VOLUNTARY PRICE: 25,000**

4. US ISO 12937:2000, Petroleum products — Determination of water — Coulometric Karl Fischer titration method

This Uganda Standard specifies a method for the direct determination of water in petroleum products boiling below 390 °C. It covers the mass fraction range 0,003 % (m/m) to 0,100 % (m/m). It is not applicable to products containing ketones or to residual fuel oils. This standard may be applicable to lubricating base oils. However, the precision has not been established for these materials.

STATUS: VOLUNTARY PRICE: 30,000

5. US ISO 8217:2012, Petroleum products — Fuels (class F) — Specifications of marine fuels

This Uganda Standard specifies the requirements for petroleum fuels for use in marine diesel engines and boilers, prior to appropriate treatment before use. The

specifications for fuels in this standard can also be applicable to fuels for stationary diesel engines of the same or similar make and type as those used for marine purposes. This standard specifies four categories of distillate fuel, one of which is for diesel engines for emergency purposes. It also specifies six categories of residual fuel.

STATUS: COMPULSORY PRICE: 50,000

6. US ISO 8216-1:2005, Petroleum products — Fuels (class F) classification — Part 1: Categories of marine fuels

This Uganda Standard establishes the detailed classification of marine fuels within class F (petroleum fuels). It is intended to be read in conjunction with US ISO 8216-99. **STATUS: COMPULSORY PRICE: 50,000**

7. US ISO 8216-2:1986, Petroleum products — Fuels (class F) — Classification — Part 2: Categories of gas turbine fuel marine applications

This Uganda Standard establishes the detailed classification of gas turbine fuels for industrial and marine applications, but excluding aircraft fuels. It should be read in conjunction with ISO 8216/0. The fuels in this classification are for use in industrial gas turbines and gas turbines derived from aviation turbines that are used in static and marine applications. The classification includes only fuels that are liquid under atmospheric pressure and at their normal storage temperatures. Petroleum fuels, being the result of the processing of crude oils of diverse origin, cannot be chemically defined, but may be categorized generally within the of this part of US ISO 8216.

STATUS: COMPULSORY PRICE: 50,000

8. US ISO 8216-99:2002, Petroleum products — Fuels (class F) — Classification — Part 99: General

This Uganda Standard establishes a general system of classification which applies to petroleum fuels designated by the prefix letter “F”. Within class F, five families (designated as categories) of products are defined according to the type of fuel and listed in decreasing order of volatility. One category, D, is defined further by subgroups on the basis of volatility and flash point, because of the safety implications of different customary titles for such fuels in different parts of the world.

STATUS: COMPULSORY PRICE: 50,000

9. US ISO 7941: 1988, Commercial propane and butane — Analysis by gas chromatography

This Uganda Standard specifies a gas chromatographic method for the quantitative determination of hydrocarbons in liquefied Petroleum gas (LPG), excluding components whose concentrations are below 0.1 % (m/m). It is applicable to the analysis of propane, butane and their commercial mixtures, which may include saturated and unsaturated C2, C3, C4 and C5 hydrocarbons. It does not apply to “online” chromatography. **STATUS: VOLUNTARY PRICE: 30,000**

10. US ISO 6743-15:2007, Lubricants, industrial oils and related products (class L) — Classification — Part 15: Family E (Internal combustion engine oils)

This Uganda Standard establishes the detailed classification, in tabular form, of engine lubricating oils for use in the following internal combustion engines:

a) two-stroke cycle, spark-ignition gasoline engines that employ a crankcase scavenging system and are used in transportation, leisure and utility applications,

such as motorcycles, snowmobiles, chainsaw (hereinafter referred to as two-stroke engine oils);

b) four-stroke cycle, spark-ignition gasoline engines that employ a common sump containing the lubricant for both the engine and the drive train/starter/transmission of motorcycles, motor scooters, all-terrain vehicles (ATVs) and related equipment (hereinafter referred to as four-stroke engine oils).

STATUS: VOLUNTARY PRICE: 25,000

11. US ISO 6246:1995, Petroleum products - Gum content of light and middle distillate fuels – Jet evaporation method

This Uganda Standard specifies a method for the determination of the existent gum content of aviation fuels, and the gum content of motor gasolines or other volatile distillates in their finished form, and at the time of test

STATUS: VOLUNTARY PRICE: 25,000

12. US ISO 6251: 1996, Liquefied petroleum gases — Corrosiveness to copper — Copper strip test

This Uganda Standard describes a method for the determination of the corrosiveness to copper of liquefied petroleum gases **STATUS: VOLUNTARY PRICE: 40,000**

13. US ISO 5165:1998, Petroleum products — Determination of the ignition quality of diesel fuels — Cetane engine method

This Uganda Standard establishes the rating of diesel fuel oil in terms of an arbitrary scale of cetane numbers using a standard single cylinder, four-stroke cycle, variable compression ratio, indirect injected diesel engine. The cetane number provides a measure of the ignition characteristics of diesel fuel oil in compression ignition engines. The cetane number is determined at constant speed in a precombustion chamber-type compression ignition test engine.

STATUS: VOLUNTARY PRICE: 30,000

14. US ISO 4261:2013, Petroleum products — Fuels (class F) — Specifications of gas turbine fuels for industrial and marine applications

This Uganda Standard specifies the requirements for petroleum fuels for gas turbines (see ISO 3977) used in public utility, industrial, and marine applications. It does not cover requirements for gas turbine fuels for aviation use. This standard is intended for the guidance of users such as turbine manufacturers, suppliers, and purchasers of gas turbine fuels. This standard sets out the properties of fuels at the time and place of transfer of custody to the user. **STATUS: COMPULSORY PRICE: 65,000**

15. US ISO 4261:2013, Petroleum products — Fuels (class F) — Specifications of gas turbine fuels for industrial and marine applications

This Uganda Standard specifies the requirements for petroleum fuels for gas turbines (see ISO 3977) used in public utility, industrial, and marine applications. It does not cover requirements for gas turbine fuels for aviation use. This standard is intended for the guidance of users such as turbine manufacturers, suppliers, and purchasers of gas turbine fuels. This standard sets out the properties of fuels at the time and place of transfer of custody to the user. **STATUS: COMPULSORY PRICE: 65,000**

16. US ISO 3837:1993, Liquid petroleum products — Determination of hydrocarbon types – Fluorescent indicator adsorption method

Annex IV_Standards published under UNBS/TC 16- Petroleum

This Uganda Standard specifies a fluorescent indicator adsorption method for the determination of hydrocarbon types over the concentration ranges from 5 % (VW) to 99 % (WV) aromatic hydrocarbons, 0.3 % (VW) to 55 % (V/V) olefins, and 1 % (VIV) to 95 % (V/v) saturated hydrocarbons in petroleum fractions that distill below 315 °C.
STATUS: VOLUNTARY PRICE: 30,000

17. US ISO 3993: 1984, Liquefied petroleum gas and light hydrocarbons Determination of density or relative density — Pressure hydrometer method

This Uganda Standard specifies a method for the determination of density or relative density of liquefied petroleum gases and other light hydrocarbons. The prescribed apparatus shall not be used for materials having gauge vapour pressures higher than 1.4 MPa (14 bar) (absolute vapour pressure 1.5 MPa) at the test temperature. Alternative calibration procedures are described, but only the one using a certified hydrometer is suitable for the determination of density to be used in calculations of quantities for custody transfer or fiscal purposes.

STATUS: VOLUNTARY PRICE: 25,000

18. US ISO 3837:1993, Liquid petroleum products — Determination of hydrocarbon types – Fluorescent indicator adsorption method

This Uganda Standard specifies a fluorescent indicator adsorption method for the determination of hydrocarbon types over the concentration ranges from 5 % (VW) to 99 % (WV) aromatic hydrocarbons, 0.3 % (VW) to 55 % (V/V) olefins, and 1 % (VIV) to 95 % (V/v) saturated hydrocarbons in petroleum fractions that distill below 315 °C.
STATUS: VOLUNTARY PRICE: 30,000

19. US ISO 2049:1996, Petroleum products - Determination of colour (ASTM scale)

This Uganda Standard specifies a method for the visual determination of the colour of a variety of petroleum products, such as lubricating oils, heating fuels, diesel fuels and petroleum waxes. It is limited to products that do not contain artificial dyes.

STATUS: VOLUNTARY PRICE: 30,000

20. US ISO 3104:1994, Petroleum products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity

This Uganda Standard specifies a procedure for the determination of the kinematic viscosity, ν , of liquid petroleum products, both transparent and opaque, by measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscometer. The dynamic viscosity, η , can be obtained by multiplying the measured kinematic viscosity by the density, ρ , of the liquid.

STATUS: VOLUNTARY PRICE: 30,000

21. US ISO 2719:2002, Determination of flash point — Pensky-Martens closed cup method

This Uganda Standard describes two procedures, A and B, using the Pensky-Martens closed cup tester, for determining the flash point of combustible liquids, liquids with suspended solids, liquids that tend to form a surface film under the test conditions and other liquids. It is applicable for liquids with a flash point above 40 °C.

STATUS: VOLUNTARY PRICE: 25,000

22. US ISO 2160:1998, Petroleum products — Corrosiveness to copper — Copper strip test

This Uganda Standard specifies a method for the determination of the corrosiveness to copper of liquid petroleum products and certain solvents. Volatile products, having a maximum vapour pressure of 124 kPa at 37.80C are included.

STATUS: VOLUNTARY PRICE: 30,000

23. US ISO 1998-99:2000, Petroleum industry — Terminology — Part 99: General and index

This Uganda Standard gives a list of terms in use in the petroleum industry, accompanied by the corresponding definitions. It was compiled to serve an evident need for a ready form of reference document. It therefore does not include all the possible terms, those terms of which significance is unambiguous being excluded.

STATUS: VOLUNTARY PRICE: 20,000

24. US ISO 1998-7:1998, Petroleum industry — Terminology — Part 7: Miscellaneous terms

This Uganda Standard consists of a list of terms, with the corresponding definitions, in use in the petroleum industry and that are not definitely relevant to one of the six categories of other parts of this standard.

STATUS: VOLUNTARY PRICE: 20,000

25. US ISO 3405:2000, Petroleum products — Determination of distillation characteristics at atmospheric pressure

This Uganda Standard specifies a laboratory method for the determination of the distillation characteristics of light and middle distillates derived from petroleum with initial boiling points above 0 °C and end-points below approximately 400 ° C, utilizing either manual or automated equipment, with the manual procedure being the referee method in cases of dispute, unless otherwise agreed.

STATUS: VOLUNTARY PRICE: 30,000

26. US EAS 158:2012, Automotive gasoline (Premium motor spirit) — Specification (2nd Edition)

This Uganda Standard specifies requirements and methods of sampling and test for automotive gasoline, Premium Motor Spirit (PMS), also commonly known as petrol, for use in spark ignition engines, including those equipped with devices to reduce emitted pollutants. The standard applies to PMS as manufactured, stored, transported and marketed.

STATUS: COMPULSORY PRICE: 25,000

27. US EAS 177:2012, Automotive gas oil (automotive diesel) — Specification (2nd Edition)

This Uganda Standard specifies the requirements and methods of sampling and test for automotive gas oil, AGO (automotive diesel) as manufactured, stored, transported and marketed.

STATUS: COMPULSORY PRICE: 25,000

28. US 249:1999/EAS159 Engine oil- Specification

This standard covers crankcase lubricating oils, for automotive type internal combustion engines, meeting or exceeding the API service classification SF for gasoline engines and meeting or exceeding the API service classification CD for diesel engines.

STATUS: COMPULSORY PRICE: 25,000

29. US 803:2008, Kerosene for domestic heating and illuminating (BIK)

This Uganda Standard specifies the requirements for a hydrocarbon fuel suitable for use in wick-fed, pressure vaporizing and other kerosene burning appliances for space heating, cooking and illumination. **STATUS: COMPULSORY PRICE: 20,000**

30. US 916:2011, Specification for denatured fuel ethanol as used for blending with gasoline

This Uganda Standard prescribes the requirements and the methods of sampling and test for anhydrous denatured fuel ethanol intended to be blended with unleaded motor gasoline of premium grade for use as a spark ignition automotive engine fuel. **STATUS: COMPULSORY PRICE: 25,000**

31. US 933:2011, Gasohol — Specification for E5 and E10

This Uganda Standard prescribes the requirements and methods of sampling and test for blends of gasoline with anhydrous ethyl alcohol (denatured fuel ethanol) for use as a fuel in the automobile spark ignition internal combustion engines of vehicles. **STATUS: COMPULSORY PRICE: 55,000**

32. US 946:2011, Specification for biodiesel fuel as used for blending with automotive gas oil

This Uganda Standard specifies requirements and methods of sampling and testing for 100 % biodiesel as marketed and delivered to be used as a blend component for automotive fuel for diesel engines. This standard applies to the blend of biodiesel and automotive gas oil to be used for automotive diesel engines, as in heavy commercial vehicles, diesel engine vehicles and tractors. It does not cover diesel fuel used in industrial burners or stationary diesel engine. **STATUS: COMPULSORY PRICE: 45,000**

33. US 971-4: 2014, Liquefied Petroleum Gases (LPG) — Part 4: Specification

This Uganda Standard specifies the requirements and methods of sampling and test for those products commonly referred to as liquefied petroleum gases, consisting predominantly of C3 hydrocarbons (propane/propene); C4 hydrocarbons (butane/butene); and mixtures of C3 and C4 hydrocarbons. **STATUS: COMPULSORY PRICE: 20,000**

34. US ISO 4925:2005, Road vehicles — Specification of non-petroleum-base brake fluids for hydraulic systems

This Uganda Standard gives the specifications, requirements and test methods, for non-petroleum-base fluids used in road-vehicle hydraulic brake and clutch systems that are designed for use with such fluids and equipped with seals, cups or double-lipped type gland seals made of styrene-butadiene rubber (SBR) and ethylene-propylene elastomer (EPDM). (This Uganda Standard is an adoption of the International Standard ISO 4925:2005). **STATUS: COMPULSORY PRICE: 45,000**

35. US ISO 1998-1:1998, Petroleum industry — Terminology — Part 1: Raw materials and products

This Uganda Standard consists of a list of equivalent terms, in use in the petroleum industry to indicate raw materials or petroleum products, together with the corresponding definitions. **STATUS: VOLUNTARY PRICE: 60,000**

**36. US ISO 1998-2:1998, Petroleum industry — Terminology — Part 2:
Properties and tests**

This Uganda Standard consists of a list of terms, in use in the petroleum industry to indicate properties of petroleum products and test methods, together with the corresponding definitions. **STATUS: VOLUNTARY PRICE: 40,000**

**37. US ISO 1998-3:1998, Petroleum industry — Terminology — Part 3:
Exploration and production**

This Uganda Standard consists of a list of terms, in use in the petroleum industry in the area of exploration and production, together with the corresponding definitions. **STATUS: VOLUNTARY PRICE: 40,000**

**38. US ISO 1998-4:1998, Petroleum industry — Terminology — Part 4:
Refining**

This Uganda Standard consists of a list of terms, in use in the petroleum industry in the area of refining, together with the corresponding definitions. **STATUS: VOLUNTARY PRICE: 65,000**

**39. US ISO 1998-5:1998, Petroleum industry — Terminology — Part 5:
Transport, storage, distribution**

This Uganda Standard consists of a list of terms, in use in the petroleum industry in the area of transport, storage and distribution, together with the corresponding definitions. **STATUS: VOLUNTARY PRICE: 65,000**

**40. US ISO 1998-6:1998, Petroleum industry — Terminology — Part 6:
Measurement**

This Uganda Standard introduces a list of terms, in use in the petroleum industry to indicate the measurement of crude oils and petroleum products, together with the corresponding definitions. **STATUS: VOLUNTARY PRICE: 65,000**

TC 16/SC2: DRILLING, DEVELOPMENT AND PRODUCTION EQUIPMENT AND MATERIALS

41. US ISO 11960: Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells

This Uganda Standard specifies the technical delivery conditions for steel pipes (casing, tubing and pup joints), coupling stock, coupling material and accessory material and establishes requirements for three Product Specification Levels (PSL-1, PSL-2, PSL-3). **STATUS: COMPULSORY, PRICE: 110,000**

42. US ISO 11961: Petroleum and natural gas industries — Steel drill pipe

This Uganda Standard specifies the technical delivery conditions for steel drill-pipes with upset pipe-body ends and weld-on tool joints for use in drilling and production operations in petroleum and natural gas industries for three product specification levels (PSL-1, PSL-2 and PSL-3). **STATUS: COMPULSORY, PRICE: 110,000**

43. US ISO 10426-1 Petroleum and natural gas industries — Cements and materials for well cementing — Part 1: Specification

This part of US ISO 10426 specifies requirements and gives recommendations for six classes of well cements, including their chemical and physical requirements and procedures for physical testing. **STATUS: COMPULSORY PRICE: 55,000**

44. US ISO 10426-2 Petroleum and natural gas industries — Cements and materials for well cementing — Part 2: Testing of well cements

This part of US ISO 10426 specifies requirements and gives recommendations for the testing of cement slurries and related materials under simulated well conditions. **STATUS: COMPULSORY PRICE: 110,000**

45. US ISO 13533: Petroleum and natural gas industries — Drilling and production equipment — Drillthrough equipment

This Uganda Standard specifies requirements for performance, design, materials, testing and inspection, welding, marking, handling, storing and shipping of drill-through equipment used for drilling for oil and gas. It also defines service conditions in terms of pressure, temperature and wellbore fluids for which the equipment will be designed. **STATUS: COMPULSORY PRICE: 110,000**

46. US ISO 14693: Petroleum and natural gas industries — Drilling and wellservicing equipment

This Uganda Standard provides general principles and specifies requirements for design, manufacture and testing of new drilling and well-servicing equipment and of replacement primary load-carrying components manufactured subsequent to the publication of this standard. **STATUS: COMPULSORY PRICE: 100,000**

47. US ISO 10407- 2: Petroleum and natural gas industries — Rotary drilling equipment — Part 2: Inspection and classification of used drill stem elements

This part of US ISO 10407 specifies the required inspection for each level of inspection and procedures for the inspection and testing of used drill stem elements. For the purpose of this part of US ISO 10407, drill stem elements include drill pipe body, tool joints, rotary-shouldered connections, drill collar, HWDP and the ends of drill stem elements that make up with them. This part of US ISO 10407 has been prepared to address the practices and technology commonly used in inspection.

STATUS: COMPULSORY PRICE: 100,000

48. US ISO 13500:2008 Petroleum and natural gas industries -- Drilling fluid materials -- Specifications and tests

This Uganda Standard covers physical properties and test procedures for materials manufactured for use in oil- and gas-well drilling fluids. The materials covered are barite, haematite, bentonite, nontreatedbentonite, OCMA-grade bentonite, attapulgate, sepiolite, technical-grade low-viscosity carboxymethylcellulose (CMC-LVT), technical-grade high-viscosity carboxymethylcellulose (CMC-HVT), starch, low-viscosity polyanionic cellulose (PAC-LV), high-viscosity polyanionic cellulose (PAC-HV) and drilling-grade *Xanthomonascampestris*(Xanthan gum).

STATUS: COMPULSORY PRICE: 110,000

49. US ISO 10414-1: Petroleum and natural gas industries — Field testing of drilling fluids — Part 1: Water-based fluids

This part of US ISO 10414 provides standard procedures for determining the following characteristics of water-based drilling fluids; drilling fluid density (mud weight), viscosity and gel strength, filtration, water, oil and solids contents, sand content, methylene blue capacity, pH, alkalinity and lime content, chloride content and total hardness as calcium. **STATUS: VOLUNTARY PRICE: 110,000**

50. US ISO 10414-2: Petroleum and natural gas industries — Field testing of drilling fluids — Part 2: Oil-based fluids

This part of US ISO 10414 provides standard procedures for determining the following characteristics of oil-based drilling fluids; drilling fluid density (mud weight), viscosity and gel strength, filtration, oil, water and solids concentrations, alkalinity, chloride concentration and calcium concentration, electrical stability, lime and calcium concentrations, calcium chloride and sodium chloride concentrations, low-gravity solids and weighting material concentrations.

STATUS: VOLUNTARY PRICE: 110,000

51. US ISO14998: Petroleum and natural gas industries — Downhole equipment — Completion accessories

This Uganda Standard provides requirements and guidelines for completion accessories, as defined herein for use in the petroleum and natural gas industry. This Uganda Standard provides requirements for the functional specification and technical specifications including: design, design verification and validation, materials, documentation and data control, redress, repair, shipment, and storage. This Uganda Standard covers the pressure containing, load bearing, disconnect/reconnect, tubing movement, and opening a port functionalities of completion accessories.

STATUS: COMPULSORY PRICE: 60,000

52. US ISO 17078-1: Petroleum and natural gas industries — Drilling and production equipment — Part 1: Side-pocket mandrels

This part of US ISO 17078 provides requirements for side-pocket mandrels used in the petroleum and natural gas industry. This part of US ISO 17078 includes specifying, selecting, designing, manufacturing, quality control, testing, and preparation for shipping of side-pocket mandrels.

STATUS: COMPULSORY PRICE: 65,000

53. US ISO 17078-2: Petroleum and natural gas industries — Drilling and production equipment — Part 2: Flow-control devices for side-pocket mandrels

This part of US ISO 17078 provides requirements for subsurface flow-control devices used in side-pocket mandrels (hereafter called flow-control devices) intended for use in the worldwide petroleum and natural gas industry. This includes requirements for specifying, selecting, designing, manufacturing, quality-control, testing and preparation for shipping of flow-control devices. Additionally, it includes information regarding performance testing and calibration procedures.

STATUS: COMPULSORY PRICE: 110,000

54. US ISO 17078-3: Petroleum and natural gas industries — Drilling and production equipment — Part 3: Running tools, pulling tools and kick-over tools and latches for side-pocket mandrels

This part of US ISO 17078 provides requirements and guidelines for running tools, pulling tools, kick-over tools and latches used for the installation and retrieval of flow control and other devices to be installed in side-pocket mandrels for use in the petroleum and natural gas industries. This includes requirements for specifying, selecting, designing, manufacturing, quality control, testing and preparation for shipping of these tools and latches. Additionally, it includes information regarding performance testing and calibration procedures.

STATUS: COMPULSORY PRICE: 65,000

55. US ISO 28781: Petroleum and natural gas industries — Drilling and production equipment — Subsurface barrier valves and related equipment

This Uganda Standard provides the requirements for subsurface barrier valves and related equipment as they are defined herein for use in the petroleum and natural gas industries. Included are the requirements for design, design validation, manufacturing, functional evaluation, repair, redress, handling and storage. Subsurface barrier valves provide a means of isolating the formation or creating a barrier in the tubular to facilitate the performance of pre- and/or post-production/injection operational activities in the well.

STATUS: COMPULSORY PRICE: 75,000

56. US ISO 10423: 2009 Petroleum and natural gas industries -- Drilling and production equipment -- Wellhead and christmas tree equipment

This Uganda Standard specifies requirements and gives recommendations for the performance, dimensional and functional interchangeability, design, materials, testing, inspection, welding, marking, handling, storing, shipment, purchasing, repair and remanufacture of wellhead and christmas tree equipment for use in the petroleum and natural gas industries. **STATUS: COMPULSORY, PRICE: 110,000**

57. US ISO 13535: Petroleum and natural gas industries — Drilling and production equipment — Hoisting equipment

This Uganda Standard provides requirements for the design, manufacture and testing of hoisting equipment suitable for use in drilling and production operations.

STATUS: COMPULSORY, PRICE: 65,000

58. US ISO 13534: Petroleum and natural gas industries — Drilling and production equipment — Inspection, maintenance, repair and remanufacture of hoisting equipment

This Uganda Standard gives guidelines and establishes requirements for inspection, maintenance, repair and remanufacture of items of hoisting equipment used in drilling and production operations, in order to maintain the serviceability of this equipment.

STATUS: COMPULSORY PRICE: 35,000

59. US ISO 13626: Petroleum and natural gas industries — Drilling and production equipment — Drilling and well-servicing structures

This Uganda Standard specifies requirements and gives recommendations for suitable steel structures for drilling and well-servicing operations in the petroleum industry, provides a uniform method of rating the structures, and provides two product specification levels. **STATUS: COMPULSORY PRICE: 65,000**

60. US ISO 14310:2008 Petroleum and natural gas industries -- Downhole equipment -- Packers and bridge plugs

This Uganda Standard provides requirements and guidelines for packers and bridge plugs as defined herein for use in the petroleum and natural gas industry. This International Standard provides requirements for the functional specification and technical specification, including design, design verification and validation, materials, documentation and data control, repair, shipment, and storage.

STATUS: COMPULSORY PRICE: 45,000

61. US ISO 13085:2014 Petroleum and natural gas industries -- Aluminium alloy pipe for use as tubing for wells

This Uganda Standard specifies the technical delivery condition, manufacturing process, material requirements, configuration and dimensions, and verification and inspection procedures for aluminium alloy pipes for use as tubing for wells in petroleum and natural gas industries. **STATUS: COMPULSORY PRICE: 50,000**

62. US ISO 15546:2011 Petroleum and natural gas industries -- Aluminium alloy drill pipe

This Uganda Standard specifies the technical delivery conditions, manufacturing process, material requirements, configuration and dimensions, and verification and inspection procedures for aluminium alloy drill pipes with or without attached steel tool joints, for use in drilling and production operations in the petroleum and natural gas industries. **STATUS: COMPULSORY PRICE: 50,000**

63. US ISO 20312:2011 Petroleum and natural gas industries -- Design and operating limits of drill strings with aluminium alloy components

This Uganda Standard applies to design and operating limits for drill strings containing aluminium alloy pipes manufactured in accordance with ISO 15546.

STATUS: COMPULSORY PRICE: 50,000

64. US ISO 27627:2014 Petroleum and natural gas industries -- Aluminium alloy drill pipe thread connection gauging

This Uganda Standard specifies the technical delivery condition, manufacturing process, material requirements, configuration and dimensions, and verification and inspection procedures for aluminium alloy drill pipes manufactured in accordance with ISO 15546. **STATUS: COMPULSORY PRICE: 50,000**

65. US ISO 10424-1:2004, Petroleum and natural gas industries — Rotary drilling equipment — Part 1: Rotary drill stem elements

This part of US ISO 10424 specifies requirements for the following drill stem elements: upper and lower Kelly valves; square and hexagonal kellys; drill stem subs; standard steel and non-magnetic drill collars; drilling and coring bits.

STATUS: COMPULSORY PRICE: 50,000

66. US ISO 10424-2:2007 Petroleum and natural gas industries -- Rotary drilling equipment -- Part 2: Threading and gauging of rotary shouldered thread connections

This part of US ISO 10424 specifies requirements on rotary shouldered connections for use in petroleum and natural gas industries, including dimensional requirements on threads and thread gauges, stipulations on gauging practice, gauge specifications, as well as instruments and methods for inspection of thread connections. These connections are intended primarily for use in drill-string components.

STATUS: COMPULSORY PRICE: 50,000

67. US ISO 10405:2000 Petroleum and natural gas industries -- Care and use of casing and tubing

This Uganda Standard establishes practices for care and use of casing and tubing. It specifies practices for running and pulling casing and tubing, including drifting, stabbing, making up and lowering, field makeup, drifting and landing procedures. Also included are causes of trouble, as well as transportation, handling and storage, inspection and field welding of attachments.

STATUS: COMPULSORY PRICE: 60,000

68. US ISO 13678:2010 Petroleum and natural gas industries -- Evaluation and testing of thread compounds for use with casing, tubing, line pipe and drill stem elements

This Uganda Standard provides requirements, recommendations and methods for the testing of thread compounds intended for use on threaded casing, tubing, and line pipe connections; and for thread compounds intended for use on rotary shouldered connections. The tests outlined are used to evaluate the critical performance properties and physical and chemical characteristics of thread compounds under laboratory conditions. **STATUS: VOLUNTARY PRICE: 65,000**

69. US ISO 15463:2003 Petroleum and natural gas industries -- Field inspection of new casing, tubing and plain-end drill pipe

This Uganda Standard specifies the technical delivery conditions, manufacturing process, material requirements, configuration and dimensions, and verification and inspection procedures for aluminium alloy drill pipes with or without attached steel tool joints, for use in drilling and production operations in the petroleum and natural gas industries. **STATUS: COMPULSORY PRICE: 50,000**

**70. US ISO 13679:2002 Petroleum and natural gas industries --
Procedures for testing casing and tubing connections**

This Uganda Standard establishes minimum design verification testing procedures and acceptance criteria for casing and tubing connections for the oil and natural gas industries. These physical tests are part of a design verification process and provide objective evidence that the connection conforms to the manufacturer's claimed test load envelope and limit loads. **STATUS: VOLUNTARY PRICE: 65,000**

**71. US ISO 16070:2005 Petroleum and natural gas industries --
Downhole equipment -- Lock mandrels and landing nipples**

This International Standard provides the requirements for lock mandrels and landing nipples within the production/injection conduit for the installation of flow control or other equipment used in the petroleum and natural gas industries. It includes the interface connections to the flow control or other equipment, but does not cover the connections to the well conduit. **STATUS: COMPULSORY PRICE: 50,000**

**72. US ISO 17078-4:2010 Petroleum and natural gas industries -- Drilling
and production equipment -- Part 4: Practices for side-pocket mandrels
and related equipment**

This part of US ISO 17078 provides informative documentation to assist the user/purchaser and the supplier/manufacturer in specification, design, selection, testing, calibration, reconditioning, installation and use of side-pocket mandrels, flow-control devices and associated latches and installation tools. The product design and manufacturing-related requirements for these products are included within the other parts of ISO 17078. **STATUS: COMPULSORY PRICE: 50,000**

**73. US ISO 21457:2010 - Petroleum, petrochemical and natural gas
industries -- Materials selection and corrosion control for oil and gas
production systems**

This International Standard identifies the corrosion mechanisms and parameters for evaluation when performing selection of materials for pipelines, piping and equipment related to transport and processing of hydrocarbon production, including utility and injection systems. This includes all equipment from and including the well head, to and including pipelines for stabilized products. This International Standard is not applicable to downhole components. **STATUS: VOLUNTARY PRICE: 50,000**

**74. US ISO 10416:2008 - Petroleum and natural gas industries -- Drilling
fluids -- Laboratory testing**

This International Standard provides procedures for the laboratory testing of both drilling fluid materials and drilling fluid physical, chemical and performance properties. It is applicable to both water-based and oil-based drilling fluids, as well as the base or "make-up" fluid. **STATUS: VOLUNTARY PRICE: 110,000**

**75. US ISO 13501:2011 - Petroleum and natural gas industries -- Drilling
fluids -- Processing equipment evaluation**

This International Standard specifies a standard procedure for assessing and modifying the performance of solids control equipment systems commonly used in the field in petroleum and natural gas drilling fluids processing. **STATUS: VOLUNTARY PRICE: 80,000**

76. US ISO 10426-4:2004 - Petroleum and natural gas industries -- Cements and materials for well cementing -- Part 4: Preparation and testing of foamed cement slurries at atmospheric pressure

This part of ISO 10426 defines the methods for the generation and testing of foamed cement slurries and their corresponding unfoamed base cement slurries at atmospheric pressure. **STATUS: VOLUNTARY PRICE: 40,000**

77. US ISO 10426-5: Petroleum and natural gas industries — Cements and materials for well cementing — Part 5: Determination of shrinkage and expansion of well cement formulations at atmospheric pressure

This part of ISO 10426 provides the methods for the testing of well cement formulations to determine the dimension changes during the curing process (cement hydration) at atmospheric pressure only. This is a base document, because under real well cementing conditions shrinkage and expansion take place under pressure and different boundary conditions. **STATUS: VOLUNTARY PRICE: 40,000**

78. US ISO 10427-3:2003 - Petroleum and natural gas industries - Equipment for well cementing - Part 3: Performance testing of cementing float equipment

This part of ISO 10427 describes testing practices to evaluate the performance of cementing float equipment for the petroleum and natural gas industries. This part of ISO 10427 is applicable to float equipment that will be in contact with water-based fluids used for drilling and cementing wells. It is not applicable to float equipment performance in non-water-based fluids. **STATUS: VOLUNTARY PRICE: 40,000**

79. US ISO 13503-1:2011 - Petroleum and natural gas industries -- Completion fluids and materials -- Part 1: Measurement of viscous properties of completion fluids

This part of ISO 13503 provides consistent methodology for determining the viscosity of completion fluids used in the petroleum and natural gas industries. For certain cases, methods are also provided to determine the rheological properties of a fluid. **STATUS: VOLUNTARY PRICE: 40,000**

80. US ISO 13503-3:2005 - Petroleum and natural gas industries -- Completion fluids and materials -- Part 3: Testing of heavy brines

This part of ISO 13503 covers the physical properties, potential contaminants and test procedures for heavy brine fluids manufactured for use in oil and gas well drilling, completion and workover fluids. This part of ISO 13503 provides methods for assessing the performance and physical characteristics of heavy brines for use in field operations. It includes procedures for evaluating the density or specific gravity, the clarity or amount of particulate matter carried in the brine, the crystallization point or the temperature (both ambient and under pressure) at which the brines make the transition between liquid and solid, the pH, and iron contamination. **STATUS: VOLUNTARY PRICE: 40,000**

81. US ISO 13503-4:2006 - Petroleum and natural gas industries -- Completion fluids and materials -- Part 4: Procedure for measuring stimulation and gravel-pack fluid leak-off under static conditions

Annex IV_Standards published under UNBS/TC 16- Petroleum

This part of ISO 13503 provides for consistent methodology to measure fluid loss of stimulation and gravel-pack fluid under static conditions. However, the procedure in this part of ISO 13503 excludes fluids that react with porous media.

STATUS: VOLUNTARY PRICE: 40,000

82. US ISO 13503-6:2014 - Petroleum and natural gas industries -- Completion fluids and materials -- Part 6: Procedure for measuring leak-off of completion fluids under dynamic conditions

This part of ISO 13503 provides consistent methodology for measuring the fluid loss of completion fluids under dynamic conditions. This part of ISO 13503 is applicable to all completion fluids except those that react with porous media.

STATUS: VOLUNTARY PRICE: 40,000

83. US ISO 13680:2010 - Petroleum and natural gas industries -- Corrosion-resistant alloy seamless tubes for use as casing, tubing and coupling stock -- Technical delivery conditions

This International Standard specifies the technical delivery conditions for corrosion-resistant alloy seamless tubulars for casing, tubing and coupling stock

STATUS: COMPULSORY, PRICE: 110,000

84. US ISO 10427-1:2001 - Petroleum and natural gas industries -- Equipment for well cementing -- Part 1: Casing bow-spring centralizers

This part of ISO 10427 provides minimum performance requirements, test procedures and marking requirements for casing bow-spring centralizers for the petroleum and natural gas industries. The procedures provide verification testing for the manufacturer's design, materials and process specifications, and periodic testing to confirm the consistency of product performance.

STATUS: COMPULSORY PRICE: 40,000

85. US ISO 10427-2:2004 - Petroleum and natural gas industries -- Equipment for well cementing -- Part 2: Centralizer placement and stop-collar testing

This part of ISO 10427 provides calculations for determining centralizer spacing, based on centralizer performance and desired standoff, in deviated and dogleg holes in wells for the petroleum and natural gas industries. It also provides a procedure for testing stop collars and reporting test results.

STATUS: COMPULSORY PRICE: 40,000

TC16/SC3 PETROLEUM MANAGEMENT AND OHSE

86. US ISO 25457:2008, Petroleum, petrochemical and natural gas industries — Flare details for general refinery and petrochemical service

This Uganda Standard specifies requirements and provides guidance for the selection, design, specification, operation and maintenance of flares and related combustion and mechanical components used in pressure-relieving and vapour-depressurizing systems for petroleum, petrochemical and natural gas industries. Although this standard is primarily intended for new flares and related equipment, it is also possible to use it to evaluate existing flare facilities.

STATUS: COMPULSORY PRICE: 60,000

87. US ISO 13705: 2012, Petroleum, petrochemical and natural gas industries — Fired heaters for general refinery service

This Uganda Standard specifies requirements and gives recommendations for the design, materials, fabrication, inspection, testing, preparation for shipment, and erection of fired heaters, air heaters (APHs), fans and burners for general refinery service. This standard is not intended to apply to the design of steam reformers or pyrolysis furnaces. **STATUS: COMPULSORY PRICE: 80,000**

88. US ISO 13880:1999, Petroleum and natural gas industries —Content and drafting of a technical specification

Scope:This Uganda Standard provides guidance for the content and drafting of a technical specification in order to ensure that all technical requirements of a product, process or service are included and can be verified as complying with specified performance requirements, such as may be specified in a functional specification (see US ISO 13879). **STATUS: COMPULSORY PRICE: 80,000**

89. US ISO 15663-1:2000, Petroleum and natural gas industries —Life cycle costing —Part 1: Methodology

This Uganda Standard specifies requirements for undertaking life-cycle costing for the development and operation of facilities for drilling, production and pipeline transportation within the petroleum and natural gas industries.

STATUS: COMPULSORY PRICE: 70,000

90. US ISO 15663-2:2001, Petroleum and natural gas industries —Life-cycle costing —Part 2: Guidance on application of methodology and calculation methods

Scope:This Uganda Standard provides guidance on application of the methodology for life-cycle costing for the development and operation of facilities for drilling, production and pipeline transportation within the petroleum and natural gas industries. This part of US ISO 15663 also provides guidance on the application and calculations of the life-cycle costing process defined in US ISO 15663-1. This part of US ISO 15663 is not concerned with determining the life-cycle cost of individual items of equipment, but rather with life-cycle costing in order to estimate the cost differences between competing project options. **STATUS: COMPULSORY PRICE: 70,000**

91. US ISO 15663-3:2001, Petroleum and natural gas industries —Life-cycle costing —Part 3: Implementation guidelines

Scope: This Uganda Standard provides guidelines for the implementation of life-cycle costing for the development and operation of the facilities for drilling, production and pipeline transportation within the petroleum and natural gas industries. This part of US ISO 15663 is applicable when making decisions on any option which has cost implications for more than one cost element or project phase.

STATUS: COMPULSORY PRICE: 70,000

92. US ISO 20815:2008, Petroleum, petrochemical and natural gas industries — Production assurance and reliability management

This Uganda Standard introduces the concept of production assurance within the systems and operations associated with exploration drilling, exploitation, processing and transport of petroleum, petrochemical and natural gas resources.

STATUS: COMPULSORY PRICE: 60,000

93. US ISO 13879:2015, Petroleum and natural gas industries — Content and drafting of a functional specification

This Uganda Standard provides guidance on the content and drafting of a functional specification. A functional specification may not be necessary if a user/purchaser wishes to obtain a known standard product, process or service manufactured/supplied to a recognized standard.

STATUS: COMPULSORY PRICE: 80,000

94. US ISO/TS 16901:2015, Guidance on performing risk assessment in the design of onshore LNG installations including the ship/shore interface

This Uganda Standard provides a common approach and guidance to those undertaking assessment of the major safety hazards as part of the planning, design, and operation of LNG facilities onshore and at shoreline using risk-based methods and standards, to enable a safe design and operation of LNG facilities.

STATUS: COMPULSORY PRICE: 60,000

95. US ISO 15544:2000, Petroleum and natural gas industries — Offshore production installations — Requirements and guidelines for emergency response

This Uganda Standard describes objectives, functional requirements and guidelines for emergency response (ER) measures on installations used for the development of offshore hydrocarbon resources. It is applicable to fixed offshore structures or floating production, storage and off-take systems. **STATUS: COMPULSORY PRICE: 70,000**

96. US/ISO TS 12498:2015, Petroleum, petrochemical and natural gas industries — Reliability modelling and calculation of safety systems

STATUS: VOLUNTARY PRICE: 40,000

TC 16/SC4: REFINING AND TRANSPORTATION

97. US ISO 148-1, Metallic materials — Charpy pendulum impact test — Part 1: Test method

This Uganda Standard specifies the Charpy pendulum impact (V-notch and U-notch) test method for determining the energy absorbed in an impact test of metallic materials. This part of US ISO 148 does not apply to instrumented impact testing, which is specified in ISO 14556. **STATUS: VOLUNTARY PRICE: 30,000**

98. US ISO 857-1: 1998, Welding and allied processes — Vocabulary — Part 1: Metal welding processes

This Uganda Standard defines metal welding processes and relating terms. **STATUS: VOLUNTARY PRICE: 30,000**

99. US ISO 3183: 2012, Petroleum and natural gas industries — Steel pipe for pipeline transportation systems

This Uganda Standard specifies requirements for the manufacture of two product specification levels (PSL 1 and PSL 2) of seamless and welded steel pipes for use in pipeline transportation systems in the petroleum and natural gas industries. This standard is not applicable to cast pipe. **STATUS: VOLUNTARY PRICE: 30,000**

100. US ISO 4136: 2012, Destructive tests on welds in metallic materials — Transverse tensile test

This Uganda Standard specifies the sizes of test specimen and the procedure for carrying out transverse tensile tests in order to determine the tensile strength and the location of fracture of a welded butt joint. This standard applies to metallic materials in all forms of product with joints made by any fusion welding process. **STATUS: VOLUNTARY PRICE: 20,000**

101. US ISO 5173: 2009, Destructive tests on welds in metallic materials — Bend tests

This Uganda Standard specifies a method for making transverse root, face and side bend tests on test specimens taken from butt welds, butt welds with cladding (subdivided into welds in clad plates and clad welds) and cladding without butt welds, in order to assess ductility and/or absence of imperfections on or near the surface of the test specimen. It also gives the dimensions of the test specimen. **STATUS: VOLUNTARY PRICE: 30,000**

102. US ISO 5178: 2001, Destructive tests on welds in metallic materials — Longitudinal tensile test on weld metal in fusion welded joints

This Uganda Standard specifies the sizes of test specimens and the test procedure for carrying out longitudinal tensile tests on cylindrical test specimens in order to determine the mechanical properties of weld metal in a fusion welded joint. **STATUS: VOLUNTARY PRICE: 30,000**

103. US ISO 6406:2005, Gas cylinders — Seamless steel gas cylinders— Periodic inspection and testing

This Uganda Standard deals with seamless steel transportable gas cylinders (single or those that comprise a bundle) intended for compressed and liquefied gases under pressure, of water capacity from 0.5 l up to 150 l; it also applies, as far as practical, to cylinders of less than 0.5 l water capacity. This standard specifies the requirements for periodic inspection and testing to verify the integrity of such gas cylinders to be re-introduced into service for a further period of time. This standard does not apply to periodic inspection and testing of acetylene cylinders or composite cylinders with steel liners. **STATUS: VOLUNTARY PRICE: 50,000**

104. US ISO 6507-1: 2005, Metallic materials — Vickers hardness test — Part 1: Test method

This Uganda Standard specifies the Vickers hardness test method, for the three different ranges of test force for metallic materials.

STATUS: VOLUNTARY PRICE: 40,000

105. US ISO 6520-1:2007, Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1: Fusion welding

This Uganda Standard serves as the basis for a precise classification and description of weld imperfections. In order to avoid any confusion, the types of imperfection are defined with explanations and illustrations where necessary. Metallurgical imperfections are not included. **STATUS: VOLUNTARY PRICE: 40,000**

106. US ISO 6947:2011, Welding and allied processes — Welding positions

This Uganda Standard defines welding positions for testing and production, for butt and fillet welds, in all product forms. **STATUS: VOLUNTARY PRICE: 30,000**

107. US ISO 9015-1: 2001, Destructive tests on welds in metallic materials — Hardness testing — Part 1: Hardness test on arc welded joints

This Uganda Standard specifies hardness tests on transverse sections of arc welded joints of metallic materials. It covers Vickers hardness tests in accordance with ISO 6507-1, normally with test loads of 49,03 N or 98,07 N (HV 5 or HV 10).

STATUS: VOLUNTARY PRICE: 30,000

108. US ISO 9712: 2012, Non-destructive testing — Qualification and certification of NDT personnel

This Uganda Standard specifies requirements for principles for the qualification and certification of personnel who perform industrial non-destructive testing (NDT).

STATUS: VOLUNTARY PRICE: 30,000

109. US ISO 10431:1993, Petroleum and natural gas industries — Pumping units — Specification

This Uganda Standard lays down specification covering the design and rating of pumping units. **STATUS: COMPULSORY PRICE: 60,000**

110. US ISO 10438-1:2007, Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries — Part 1: General requirements

This Uganda Standard specifies general requirements for lubrication systems, oil-type shaft-sealing systems, dry-gas face-type shaft-sealing systems and control-oil systems

for general- or special-purpose applications. General-purpose applications are limited to lubrication systems. These systems can serve equipment such as compressors, gears, pumps and drivers. This part of US ISO 10438 is intended to be used in conjunction with US ISO 10438-2, US ISO 10438-3 or US ISO 10438-4, as appropriate. **STATUS: COMPULSORY PRICE: 80,000**

111. US ISO 10438-2:2007, Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries — Part 2: Special-purpose oil systems

This Uganda Standard, in conjunction with of US ISO 10438-1, specifies requirements for oil systems for special purpose applications. These oil systems can provide lubrication oil, seal oil or both. These systems can serve equipment such as compressors, gears, pumps and drivers. **STATUS: COMPULSORY PRICE: 80,000**

112. US ISO 10438-3:2007, Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries — Part 3: General-purpose oil systems

This Uganda Standard, in conjunction with US ISO 10438-1, specifies requirements for oil systems for general purpose applications. These oil systems can provide lubrication oil, but not seal oil and can serve equipment such as compressors, gears, pumps. **STATUS: COMPULSORY PRICE: 60,000**

113. US ISO 10438-4:2007, Petroleum, petrochemical and natural gas industries — Lubrication, shaft-sealing and control-oil systems and auxiliaries — Part 4: Self-acting gas seal support systems

This Uganda Standard in conjunction with US ISO 10438-1 specifies requirements for support systems for self-acting gas seals (dry gas seals), for example as described in ISO 10439 and ISO 10440-1. These systems can serve equipment such as compressors, gears, pumps and drivers. **STATUS: COMPULSORY PRICE: 60,000**

114. US ISO 10439-1:2015, Petroleum, petrochemical and natural gas industries — Axial and centrifugal compressors and expander compressors — Part 1: General requirements

This Uganda Standard specifies minimum requirements and gives recommendations for axial compressors, single-shaft, and integrally geared process centrifugal compressors, and expander compressors for special purpose applications that handle gas or process air in the petroleum, petrochemical, and natural gas industries. **STATUS: COMPULSORY PRICE: 110,000**

115. US ISO 10439-2:2015, Petroleum, chemical and gas service industries – Axial and centrifugal compressors and expander compressors – Part 2: Non-integrally geared centrifugal and axial compressors

This Uganda Standard specifies minimum requirements and gives recommendations for axial compressors, single-shaft, and integrally geared process centrifugal compressors and expander-compressors for special purpose applications that handle gas or process air in the petroleum, petrochemical, and natural gas industries. **STATUS: COMPULSORY PRICE: 90,000**

116. US ISO 10439-3:2015, Petroleum, chemical and natural gas service industries — Axial and centrifugal compressors and expander compressors — Part 3: Integrally geared centrifugal compressors

This Uganda Standard specifies minimum requirements and gives recommendations for axial compressors, single-shaft and integrally geared process centrifugal compressors, and expander compressors for special purpose applications that handle gas or process air in the petroleum, petrochemical, and natural gas industries. This part of US ISO 10439 specifies integrally geared centrifugal compressors in conjunction with US ISO 10439-1. **STATUS: COMPULSORY PRICE: 90,000**

117. US ISO 13588: 2012, Non-destructive testing of welds — Ultrasonic testing — Use of automated phased array technology other non-destructive testing (NDT) methods or techniques, for manufacturing inspection, pre-service and for in-service inspection.

This Uganda Standard specifies the application of the phased array technology for the semi- or fully automated ultrasonic testing of fusion-welded joints in metallic materials of minimum thickness 6 mm. It applies to full penetration welded joints of simple geometry in plates, pipes, and vessels, where both the weld and parent material are low-alloyed carbon steel. **STATUS: VOLUNTARY PRICE: 40,000**

118. US ISO 13623: 2009, Petroleum and natural gas industries — Pipeline transportation systems

This Uganda Standard specifies requirements and gives recommendations for the design, materials, construction, testing, operation, maintenance and abandonment of pipeline systems used for transportation in the petroleum and natural gas industries. **STATUS: COMPULSORY, PRICE: 110,000**

119. US ISO 13680:2010, Petroleum and natural gas industries — Corrosion-resistant alloy seamless tubes for use as casing, tubing and coupling stock — Technical delivery conditions

This Uganda Standard specifies the technical delivery conditions for corrosion-resistant alloy seamless tubulars for casing, tubing and coupling stock. **STATUS: COMPULSORY, PRICE: 110,000**

120. US ISO 13706:2011, Petroleum, petrochemical and natural gas industries — Air-cooled heat exchangers

This Uganda Standard gives requirements and recommendations for the design, materials, fabrication, inspection, testing and preparation for shipment of air-cooled heat exchangers for use in the petroleum, petrochemical and natural gas industries. This standard is applicable to air-cooled heat exchangers with horizontal bundles, but the basic concepts can also be applied to other configurations. **STATUS: COMPULSORY, PRICE: 110,000**

121. US ISO 13707:2000, Petroleum and natural gas industries — Reciprocating compressors

This Uganda Standard covers the minimum requirements for reciprocating compressors and their drivers used in the petroleum and natural gas industries with either lubricated or no lubricated cylinders. **STATUS: COMPULSORY, PRICE: 110,000**

122. US ISO 13709:2009, Centrifugal pumps for petroleum, petrochemical and natural gas industries

This Uganda Standard specifies requirements for centrifugal pumps, including pumps running in reverse as hydraulic power recovery turbines, for use in petroleum, petrochemical and gas industry process services.

STATUS: COMPULSORY, PRICE: 110,000

123. US ISO 13710: 2004, Petroleum, petrochemical and natural gas industries — Reciprocating positive displacement pumps

This Uganda Standard specifies requirements for reciprocating positive-displacement pumps and pump units for use in the petroleum, petrochemical and natural gas industries. It is applicable to both direct-acting and power-frame types.

STATUS: COMPULSORY, PRICE: 110,000

124. US ISO 13847: 2013, Petroleum and natural gas industries — Pipeline transportation systems — Welding of pipelines

This Uganda Standard specifies requirements for the petroleum, petrochemical and natural gas industries, for producing and inspecting girth, branch and fillet welds in the pipeline part of pipeline transportation systems which meet the requirements of US ISO 13623 or equivalent. **STATUS: COMPULSORY, PRICE: 110,000**

125. US ISO 14313:2007, Petroleum and natural gas industries — Pipeline transportation systems — Pipeline valves

This Uganda Standard specifies requirements and provides recommendations for the design, manufacturing, testing and documentation of ball, check, gate and plug valves for application in pipeline systems meeting the requirements of US ISO 13623 for the petroleum and natural gas industries. This standard is not applicable to subsea pipeline valves, as they are covered by a separate standard (ISO 14723). This standard is not applicable to valves for pressure ratings exceeding PN 420.

STATUS: COMPULSORY, PRICE: 110,000

126. US ISO 14732: 2013, Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials

This Uganda Standard specifies requirements for qualification of welding operators and also weld setters for mechanized and automatic welding.

STATUS: COMPULSORY, PRICE: 40,000

127. US ISO 15136-1: 2009, Petroleum and natural gas industries — Progressing cavity pump systems for artificial lift —Part 1: Pumps

This Uganda Standard provides requirements for the design, design verification and validation, manufacturing and data control, performance ratings, functional evaluation, repair, handling and storage of progressing cavity pumps for use in the petroleum and natural gas industry. This part of US ISO 15136 is applicable to those products meeting the definition of progressing cavity pumps (PCP) included herein. Connections to the drive string and tubulars are not covered by this part of US ISO 15136. **STATUS: COMPULSORY, PRICE: 110,000**

128. US ISO 15136-2: 2006, Petroleum and natural gas industries — Progressing cavity pump systems for artificial lift —Part 2: Surface-drive systems

This Uganda Standard provides requirements for the design, design verification and validation, manufacturing and data control, performance ratings and repair of progressing cavity pump surface-drive systems for use in the petroleum and natural gas industry. This part of US ISO 15136 is applicable to those products meeting the definition of surface-drive systems. Additionally, informative annexes provide information on brake system selection, installation, and operation; and sucker rod selection and use. **STATUS: COMPULSORY, PRICE: 65,000**

129. US ISO 15589-1:2015, Petroleum and natural gas industries — Cathodic protection of pipeline transportation systems — Part 1: On-land pipelines

This Uganda Standard specifies requirements and gives recommendations for the pre-installation surveys, design, materials, equipment, installation, commissioning, operation, inspection, and maintenance of cathodic protection systems for on-land pipelines, as defined in US ISO 13623 for the petroleum, petrochemical, and natural gas industries. **STATUS: COMPULSORY, PRICE: 110,000**

130. US ISO 15589-2:2012, Petroleum and natural gas industries — Cathodic protection of pipeline transportation systems — Part 2: Offshore pipelines

This Uganda Standard specifies requirements and gives recommendations for the pre-installation surveys, design, materials, equipment, fabrication, installation, commissioning, operation, inspection and maintenance of cathodic protection (CP) systems for offshore pipelines for the petroleum, petrochemical and natural gas industries as defined in US ISO 13623.

STATUS: COMPULSORY PRICE: 60,000

131. US ISO 15590-1:2009, Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 1: Induction bends

This Uganda Standard specifies the technical delivery conditions for bends made by the induction bending process for use in pipeline transportation systems for the petroleum and natural gas industries as defined in US ISO 13623.

STATUS: COMPULSORY PRICE: 110,000

132. US ISO 15590-2:2003, Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 2: Fittings

This Uganda Standard specifies the technical delivery conditions for unalloyed or low-alloy steel seamless and welded pipeline fittings for use in pipeline transportation systems for the petroleum and natural gas industries as defined in US ISO 13623.

STATUS: COMPULSORY PRICE: 60,000

133. US ISO 15590-3:2004, Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 3: Flanges

This Uganda Standard applies to weldneck and blind flanges (full face, raised face, and RTJ groove) as well as anchor, swivel-ring flanges and orifice flanges.

STATUS: COMPULSORY PRICE: 40,000

134. US ISO 15609-1:2004, Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding

This Uganda Standard specifies requirements for the content of welding procedure specifications for arc welding processes.

STATUS: VOLUNTARY PRICE: 50,000

135. US ISO 15609-2: 2001, Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding

This Uganda Standard specifies requirements for the content of welding procedure specifications for gas welding processes. Variables listed in this standard are those influencing the quality of the welded joint.

STATUS: VOLUNTARY PRICE: 50,000

136. US ISO 15609-3: 2004, Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 3: Electron beam welding

This Uganda Standard specifies requirements for the content of welding procedure specifications for electron beam welding. Variables listed in this standard are those influencing the quality and properties of the welded joint.

STATUS: VOLUNTARY PRICE: 50,000

137. US ISO 15609-4: 2009, Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 4: Laser beam welding

This Uganda Standard specifies requirements for the content of the welding procedure specification (WPS) for laser beam welding processes, including overlay welding. It is not applicable to other processes for cladding (e.g. thermal spraying).

STATUS: VOLUNTARY PRICE: 50,000

138. US ISO 15609-5: 2011, Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding

This Uganda Standard specifies requirements for the content of welding procedure specifications for resistance spot, seam, butt and projection welding processes. It is necessary to establish the acceptability of applying the principles of this part of US ISO 15609 to other resistance and related welding processes before any qualification is undertaken. **STATUS: VOLUNTARY PRICE: 50,000**

139. US ISO 15609-6: 2013, Specification and qualification of welding procedures for metallic materials — Welding Procedure specification — Part 6: Laser-arc hybrid welding

This Uganda Standard specifies requirements for the content of welding procedure specifications for laser-arc hybrid welding processes. Variables listed in this part of US

ISO 15609 are those influencing the quality and the properties of the welded joint.
STATUS: VOLUNTARY PRICE: 50,000

140. US ISO 16812:2007, Petroleum, petrochemical and natural gas industries — Shell and-tube heat exchangers

This Uganda Standard specifies requirements and gives recommendations for the mechanical design, material selection, fabrication, inspection, testing and preparation for shipment of shell-and-tube heat exchangers for the petroleum, petrochemical and natural gas industries. This standard is applicable to the following types of shell-and-tube heat exchangers: heaters, condensers, coolers and reboilers. This standard is not applicable to vacuum-operated steam surface condensers and feed-water heaters.
STATUS: COMPULSORY PRICE: 50,000

141. US ISO 17636-1:2013, Non-destructive testing of welds — Radiographic testing — Part 1: X- and gamma-ray techniques with film

This Uganda Standard specifies techniques of radiographic examination of fusion welded joints in metallic materials using industrial radiographic film techniques. This part of US ISO 17636 applies to the joints of plates and pipes. Besides its conventional meaning, “pipe” as used in this standard covers other cylindrical bodies such as tubes, penstocks, boiler drums, and pressure vessels.
STATUS: VOLUNTARY PRICE: 50,000

142. US ISO 17636-2:2013, Non-destructive testing of welds — Radiographic testing — Part 2: X- and gamma-ray techniques with digital detectors

This Uganda Standard specifies fundamental techniques of digital radiography with the object of enabling satisfactory and repeatable results to be obtained economically. The techniques are based on generally recognized practice and fundamental theory of the subject. This part of US ISO 17636 applies to the digital radiographic examination of fusion welded joints in metallic materials. It applies to the joints of plates and pipes. Besides its conventional meaning, “pipe”, as used in this International Standard, covers other cylindrical bodies such as tubes, penstocks, boiler drums, and pressure vessel.
STATUS: VOLUNTARY PRICE: 70,000

143. US 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)

This Uganda Standard specifies requirements of plant-applied external three-layer polyethylene- and polypropylene-based coatings for corrosion protection of welded and seamless steel pipes for pipeline transportation systems in the petroleum and natural gas industries in accordance with US ISO 13623.
STATUS: COMPULSORY PRICE: 70,000

144. US ISO 21809-2:2014, Petroleum and natural gas industries — External coatings for buried or submerged pipelines used in pipeline transportation systems — Part 2: Single layer fusion-bonded epoxy coatings

Annex IV_Standards published under UNBS/TC 16- Petroleum

This Uganda Standard specifies the requirements for qualification, application, testing and handling of materials for plant application of single layer fusion-bonded epoxy (FBE) coatings applied externally for the corrosion protection of bare steel pipe for use in pipeline transportation systems for the petroleum and natural gas industries as defined in US ISO 13623. **STATUS: COMPULSORY PRICE: 70,000**

145. US ISO 21809-3:2011, Petroleum and natural gas industries — External coatings for buried or submerged pipelines used in pipeline transportation systems — Part 3: Field joint coatings

This Uganda Standard specifies requirements for field joint coating of seamless or welded steel pipes for pipeline transportation systems in the petroleum and natural gas industries as defined in US ISO 13623.

STATUS: COMPULSORY PRICE: 110,000

146. US 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)

This Uganda Standard specifies the requirements for qualification, application, inspection, testing, handling and storage of materials for plant application of two-layer polyethylene coatings (2-layer PE) applied externally for the corrosion protection of bare steel pipe for use in pipeline transportation systems for the petroleum and natural gas industries as defined in US ISO 13623.

STATUS: COMPULSORY PRICE: 50,000

147. US ISO 21809-5:2010, Petroleum and natural gas industries — External coatings for buried or submerged pipelines used in pipeline transportation systems — Part 5: External concrete coatings

This Uganda Standard specifies the requirements for qualification, application, testing and handling of materials required for the application of reinforced concrete coating externally to either bare pipe or pre-coated pipe for use in pipeline transportation systems for the petroleum and natural gas industries as defined in US ISO 13623.

STATUS: COMPULSORY PRICE: 50,000

TC16/SC5 DISTRIBUTION

148. US ISO 3993: 1984, Liquefied petroleum gas and light hydrocarbons — Determination of density or relative density — Pressure hydrometer method

This Uganda Standard specifies a method for the determination of density or relative density of liquefied petroleum gases and other light hydrocarbons. The prescribed apparatus shall not be used for materials having gauge vapour pressures higher than 1.4 MPa (14 bar) (absolute vapour pressure 1.5 MPa) at the test temperature. Alternative calibration procedures are described, but only the one using a certified hydrometer is suitable for the determination of density to be used in calculations of quantities for custody transfer or fiscal purposes.

STATUS: VOLUNTARY PRICE: 25,000

149. US ISO 4512:2007, Petroleum and liquid petroleum products — Equipment for measurement of liquid levels in storage tanks — Manual methods

This Uganda Standard specifies the requirements for the equipment required to measure manually the liquid level or the corresponding volume of petroleum and petroleum products stored in tanks and containers.

STATUS: VOLUNTARY PRICE: 45,000

150. US ISO 4257: 2001, Liquefied petroleum gases — Method of sampling

This Uganda Standard specifies the procedure to be used for obtaining samples of unrefrigerated liquefied petroleum gases (LPG). It is suitable for sampling from bulk containers, to provide samples for laboratory testing of products.

STATUS: VOLUNTARY PRICE: 20,000

151. US ISO 4256:1996, Liquefied petroleum gases — Determination of gauge vapour pressure — LPG method

This Uganda Standard describes a method for the determination of gauge vapour pressures of liquefied petroleum gas products (see clause 3) at temperatures within the approximate range of 35 °C to 70 °C. **STATUS: VOLUNTARY PRICE: 20,000**

152. US ISO 4925:2005, Road vehicles — Specification of nonpetroleum-base brake Fluids for hydraulic systems

This Uganda Standard gives the specifications, requirements and test methods, for nonpetroleum- base fluids used in road-vehicle hydraulic brake and clutch systems that are designed for use with such fluids and equipped with seals, cups or double-lipped type gland seals made of styrene-butadiene rubber (SBR) and ethylene-propylene elastomer (EPDM). **STATUS: COMPULSORY PRICE: 45,000**

153. US ISO 4706:2008, Gas cylinders — Refillable welded steel cylinders — Test pressure 60 bar and below

This Uganda Standard specifies the minimum requirements concerning material selection, design, construction and workmanship, procedure and test at manufacture of refillable welded-steel gas cylinders of a test pressure not greater than 60 bar, and

of water capacities from 0.5 l up to and including 500 l exposed to extreme worldwide temperatures (-50 °C to 65 °C) used for compressed, liquefied or dissolved gases. Transportable large cylinders of water capacity above 150 l and up to 500 l may be manufactured and certified to this standard provided handling facilities are provided. This standard is primarily intended to be used for industrial gases other than Liquefied Petroleum Gas (LPG), but may also be applied for LPG. For specific LPG applications see ISO 22991. **STATUS: COMPULSORY PRICE: 50,000**

154. US ISO 5145: 2014, Cylinder valve outlets for gases and gas mixtures — Selection and dimensioning

This Uganda Standard establishes practical criteria for determining valve outlet connections for gas cylinders. It applies to the selection of gas cylinder valve outlet connections and specifies the dimensions for a number of them.

This standard does not apply to connections used for cryogenic gas withdrawal or gases for breathing equipment, which are the subjects of other International Standards. **STATUS: VOLUNTARY PRICE: 50,000**

155. US ISO 6406:2005, Gas cylinders — Seamless steel gas cylinders— Periodic inspection and testing

This Uganda Standard deals with seamless steel transportable gas cylinders (single or those that comprise a bundle) intended for compressed and liquefied gases under pressure, of water capacity from 0.5 l up to 150 l; it also applies, as far as practical, to cylinders of less than 0.5 l water capacity. This standard specifies the requirements for periodic inspection and testing to verify the integrity of such gas cylinders to be re-introduced into service for a further period of time. This standard does not apply to periodic inspection and testing of acetylene cylinders or composite cylinders with steel liners. **STATUS: VOLUNTARY PRICE: 50,000**

156. US ISO 7507-1:2003, Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 1: Strapping method

This Uganda Standard specifies a method for the calibration of substantially vertical cylindrical tanks by measuring the tank using a strapping tape.

STATUS: VOLUNTARY PRICE: 80,000

157. US ISO 7225:2005, Gas cylinders — Precautionary labels

This Uganda Standard specifies the design, content (that is, hazard symbols and text) and application of precautionary labels intended for use on individual gas cylinders containing single gases or gas mixtures. Labels for cylinders of bundles and labels for bundles are not covered by this standard.

STATUS: COMPULSORY PRICE: 30,000

158. US ISO 7507-2:2005, Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 2: Optical reference line method

This Uganda Standard specifies a method for the calibration of tanks above eight metres in diameter with cylindrical courses that are substantially vertical. It provides a method for determining the volumetric quantity contained within a tank at gauged liquid levels. **STATUS: VOLUNTARY PRICE: 80,000**

159. US ISO 7507-3:2006, Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 3: Optical triangulation method

This Uganda Standard specifies a calibration procedure for application to tanks above 8 m in diameter with cylindrical courses that are substantially vertical. It provides a method for determining the volumetric quantity contained within a tank at gauged liquid levels. The measurements required to determine the radius are made either internally or externally. The external method is applicable only to tanks that are free of insulation. **STATUS: VOLUNTARY PRICE: 80,000**

160. US ISO 7507-4:1995, Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks - Part 4: Internal electro-optical distance-ranging method

This Uganda Standard specifies a method for the calibration of vertical cylindrical tanks having diameters greater than 5 m by means of internal measurements using an electro-optical distance ranging instrument, and for the subsequent compilation of tank capacity tables. This method is known as the internal electro-optical distance ranging (EODR) method. **STATUS: VOLUNTARY PRICE: 80,000**

161. US ISO/TR 7507-6:1997, Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 6: Recommendations for monitoring, checking and verification of tank calibration and capacity table

This Uganda Standard gives guidance on monitoring the accuracy of the calibration and the tank capacity table of a vertical cylindrical tank. **STATUS: VOLUNTARY PRICE: 80,000**

162. US ISO 7507-5:2000, Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 5: External electro-optical distance-ranging method

This Uganda Standard specifies a method for the calibration of non-insulated vertical cylindrical tanks having diameters greater than 5 m, by means of external measurement using an electro-optical distance-ranging method (EODR), and for the subsequent compilation of tank capacity tables. (This Uganda Standard is an adoption of the International Standard ISO 7507-5:2000). **STATUS: VOLUNTARY PRICE: 80,000**

163. US ISO 7866:2012, Gas cylinders — Refillable seamless aluminium alloy gas cylinders — Design, construction and testing

This Uganda Standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes and tests at time of manufacture of refillable seamless aluminium alloy gas cylinders of water capacities up to and including 150 litres for compressed, liquefied and dissolved gases for worldwide use (normally up to +65 °C). **STATUS: COMPULSORY PRICE: 80,000**

164. US ISO 8819: 1993 Liquefied petroleum gases — Detection of hydrogen sulfide — Lead acetate method

This Uganda Standard specifies a method for the detection of hydrogen sulfide in liquefied petroleum gases. **STATUS: VOLUNTARY PRICE: 30,000**

165. US ISO 8973: 1997, Liquefied petroleum gases — Calculation method for density and vapour pressure

This Uganda Standard describes a simplified method for the calculation of density and vapour pressure of liquefied petroleum gases (LPG) based on compositional data and density and vapour pressure factors for individual LPG components. A list of factors is provided in this standard. This method is intended for application in specifications of product quality and is not intended for application to quantity measurement in custody transfer (see ISO 6578). **STATUS: VOLUNTARY PRICE: 30,000**

166. US ISO 9809-1: 2010, Gas cylinders — Refillable seamless steel gas cylinders — Design, construction and testing — Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa

This Uganda Standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at manufacture of refillable quenched and tempered seamless steel gas cylinders of water capacities from 0.5 l up to and including 150 l for compressed, liquefied and dissolved gases. This standard is applicable to cylinders with a maximum actual tensile strength R_{ma} of less than 1 100 MPa. **STATUS: COMPULSORY PRICE: 60,000**

167. US ISO 9809-2:2010, 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 1 100 MPa

This Uganda Standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at manufacture of refillable quenched and tempered seamless steel gas cylinders of water capacities from 0.5 l up to and including 150 l for compressed, liquefied and dissolved gases.

This part of US ISO 9809 is applicable to cylinders with a maximum tensile strength $R_{ma} \geq 1\ 100$ MPa. It is not applicable to cylinders with $R_{ma, \max} > 1\ 300$ MPa for diameters > 140 mm and guaranteed wall thicknesses $a' \geq 12$ mm and $R_{ma, \max} > 1\ 400$ MPa for diameters ≤ 140 mm and guaranteed wall thicknesses $a' \geq 6$ mm, because beyond these limits, additional requirements can apply.

STATUS: COMPULSORY PRICE: 60,000

168. US ISO 9809-3:2010, Gas cylinders — Refillable seamless steel gas cylinders — Design, construction and testing — Part 3: Normalized steel cylinders

This Uganda Standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at manufacture of refillable normalized or normalized and tempered seamless steel gas cylinders of water capacities from 0.5 l up to and including 150 l for compressed, liquefied and dissolved gases. **STATUS: COMPULSORY PRICE: 60,000**

169. US ISO 10156: 2010, Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets

This Uganda Standard specifies methods for determining whether or not a gas or gas mixture is flammable in air and whether a gas or gas mixture is more or less oxidizing than air under atmospheric conditions. This standard is intended to be used for the

classification of gases and gas mixtures including the selection of gas cylinder valve outlets. This standard does not cover the safe preparation of these mixtures under pressure and at temperatures other than ambient.

STATUS: VOLUNTARY PRICE: 40,000

170. US ISO 9809-4:2014, Gas cylinders — Refillable seamless steel gas cylinders — Design, construction and testing — Part 4: Stainless steel cylinders with an Rm value of less than 1 100 MPa

This Uganda Standard specifies the minimum requirements for the material, design, construction and workmanship, manufacturing processes, examinations, and tests at manufacture of refillable seamless stainless steel gas cylinders of water capacities from 0.5 l up to and including 150 l for compressed, liquefied, and dissolved gases. This part of US ISO 9809 is applicable to cylinders with a maximum actual tensile strength, R_m , of less than 1 100 MPa. **STATUS: VOLUNTARY PRICE: 60,000**

171. US ISO 10461:2005, Gas cylinders — Seamless aluminium alloy gas cylinders — Periodic inspection and testing

This Uganda Standard deals with seamless aluminium-alloy transportable gas cylinders intended for compressed and liquefied gases under pressure, of water capacity from 0.5 l to 150 l; it also applies, as far as practical, to cylinders of less than 0.5 l water capacity. This standard specifies the requirements for periodic inspection and testing to verify the integrity of such gas cylinders for further service. This standard does not apply to periodic inspection and testing of acetylene cylinders or composite cylinders with aluminium-alloy liners.

STATUS: COMPULSORY PRICE: 55,000

172. US ISO 10460: 2005, Gas cylinders — Welded carbon-steel gas cylinders — Periodic inspection and testing

This Uganda Standard deals with welded, carbon-steel, transportable gas cylinders intended for compressed and liquefied gases under pressure, of water capacity from 0.5 l to 150 l; it also applies, as far as practical, to cylinders of less than 0.5 l water capacity and greater than 150 l up to 450 l. This standard specifies the requirements for periodic inspection and testing to verify the integrity of such gas cylinders for further service. This standard does not apply to the periodic inspection and testing of acetylene cylinders or composite (fully wrapped or hoop-wrapped) cylinders. This standard is primarily for industrial gases other than liquefied petroleum gas (LPG), but may also be applied for LPG. For specific LPG applications, see ISO 10464.

STATUS: VOLUNTARY PRICE: 40,000

173. US ISO 11114-2 :2012, Gas cylinders — Compatibility of cylinders and valve materials with gas contents — Part 2: Non-metallic materials

This Uganda Standard gives guidance in the selection and evaluation of compatibility between non-metallic materials for gas cylinders and valves and the gas contents. It also covers bundles, tubes and pressure drums. This standard can be helpful for composite and laminated materials used for gas cylinders. It does not cover the subject completely and is intended to give guidance only in evaluating the compatibility of gas/material combinations. Only the influence of the gas in changing the material and mechanical properties is considered (for example chemical reaction or change in physical state). The basic properties of the materials, such as mechanical properties, required for design purposes are normally available from the materials

supplier and are not considered in this part of the standard. The compatibility data given are related to single component gases but can be used to some extent for gas mixtures.

Ceramics, glasses, and adhesives are not covered by this part of the standard. Other aspects such as quality of delivered gas are not considered. This part of US ISO 11114 is not intended to be used for cryogenic fluids.

STATUS: VOLUNTARY PRICE: 30,000

174. US ISO 11119-1: 2012, Gas cylinders — Refillable composite gas cylinders and tubes — Design, construction and testing — Part 1: Hoop wrapped fibre reinforced composite gas cylinders and tubes up to 450

This Uganda Standard specifies requirements for composite gas cylinders and tubes between 0.5 l and 450 l water capacity, for the storage and conveyance of compressed or liquefied gases.

This standard applies to type 2 hoop wrapped cylinder or tube with a load-sharing metal liner and composite reinforcement on the cylindrical portion only. This standard is limited to cylinders and tubes with composite reinforcement of carbon fibre, aramid fibre or glass fibre (or a mixture thereof) within a matrix or steel wire to provide circumferential reinforcement. **STATUS: COMPULSORY PRICE: 45,000**

175. US ISO 11119-2: 2012, Gas cylinders — Refillable composite gas cylinders and tubes — Design, construction and testing — Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners

This Uganda Standard specifies requirements for composite gas cylinders and tubes between 0.5 l and 450 l water capacity, for the storage and conveyance of compressed or liquefied gases.

This standard applies to type 3 fully wrapped cylinders or tubes with a load-sharing metal liner and composite reinforcement on both the cylindrical portion and the dome ends. This standard is limited to cylinders and tubes with composite reinforcement of carbon fibre, aramid fibre or glass fibre (or a mixture thereof) within a matrix. **STATUS: COMPULSORY PRICE: 45,000**

176. US ISO 11119-3: 2013 Gas cylinders— Refillable composite gas cylinders and tubes Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with non-load –sharing metallic or non-metallic liners

This Uganda Standard specifies requirements for composite gas cylinders up to 150 l water capacity and composite tubes above 150 l water capacity and up to 450 l water capacity, for the storage and conveyance of compressed or liquefied gases. This standard does not address the design, fitting and performance of removable protective sleeves. **STATUS: COMPULSORY PRICE: 65,000**

US ISO 11223:2004, Petroleum and liquid petroleum products — Direct static measurements — Measurement of content of vertical storage tanks by hydrostatic tank gauging

This Uganda Standard gives guidance on the selection, installation, commissioning, maintenance, validation and calibration of hydrostatic tank-gauging (HTG) systems for the direct measurement of static mass in petroleum storage tanks. It is intended to cover custody transfer applications, although details of other, less accurate,

measurements are included for information. It also gives guidance on calculations of standard volume from measured mass and independently measured reference density. Information is also included on measurements of observed and standard volume using density measured by the HTG system itself.

STATUS: VOLUNTARY PRICE: 75,000

177. US ISO 11120:1999, Gas cylinders — Refillable seamless steel tubes of water capacity between 150 l and 3 000 l — Design, construction and testing

This Uganda Standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes and tests at manufacture of refillable quenched and tempered seamless steel tubes of water capacities from 150 l up to and including 3 000 l for compressed and liquefied gases exposed to extreme world-wide ambient temperatures (normally between -50 °C and +65 °C). This standard is applicable to tubes with a maximum tensile strength R_m of less than 1 100 MPa. These tubes can be used alone or in batteries to equip trailers or skids (ISO modules) for the transportation and distribution of compressed gases. This standard does not include consideration of any additional stresses that may occur during service or transport, e.g. bending stresses, etc.

STATUS: VOLUNTARY PRICE: 55,000

178. US ISO 11621:1997, Gas cylinders — Procedures for change of gas service

This Uganda Standard applies to seamless steel, aluminium alloy and welded steel refillable cylinders of all sizes, including large cylinders (water capacity greater than 150 l). It provides general requirements and procedures to be considered whenever a cylinder is being transferred from one gas service to another for permanent and liquefied gases. It does not apply to cylinders for dissolved acetylene, radioactive gases or gases listed in group G of Table 1.

STATUS: VOLUNTARY PRICE: 30,000

179. US ISO 13341:2010, Gas cylinders — Fitting of valves to gas cylinders

This Uganda Standard specifies the procedures to be followed when connecting cylinder valves to gas cylinders. It specifically applies to all valve and cylinder combinations connected with ISO screw threads as specified in ISO 10920 and ISO 11363-1. It defines routines for inspection and preparation prior to valving for both taper and parallel screw threads. **STATUS: VOLUNTARY PRICE: 35,000**

180. US ISO 13758:1996, Liquefied petroleum gases — Assessment of the dryness of propane — Valve freeze method

This Uganda Standard describes a procedure for the assessment of whether liquefied petroleum gas (LPG) hydrocarbons consisting predominantly of propane and/or propene are sufficiently dry to avoid malfunctions in pressure-reducing systems installed in domestic, industrial and automotive LPG applications. The test is normally used as a functional pass/fail test in which the behaviour of the product is assessed in a specially designed and calibrated regulator valve.

STATUS: VOLUNTARY PRICE: 25,000

181. US ISO 14245:2006, Gas cylinders — Specification and testing of LPG cylinder valves — Self closing

This Uganda Standard specifies the requirements for design, specification and type testing for dedicated LPG self-closing cylinder valves specifically for use with transportable refillable LPG cylinders from 0,5 l up to 150 l water capacity. It includes references to associated equipment for vapour or liquid service.

STATUS: COMPULSORY PRICE: 35,000

182. US ISO 15169:2003, Petroleum and liquid petroleum products — Determination of volume, density and mass of the hydrocarbon content of vertical cylindrical tanks by hybrid tank measurement systems

This Uganda Standard gives guidance on the selection, installation, commissioning, calibration and verification of hybrid tank measurement systems (HTMS) for the measurement of level, static mass, observed and standard volume, and observed and reference density in tanks storing petroleum and petroleum products in fiscal or custody transfer application. **STATUS: VOLUNTARY PRICE: 45,000**

183. US ISO 15403-1:2006, Natural gas — Natural gas for use as a compressed fuel for vehicles — Part 1: Designation of the quality

This Uganda Standard provides manufacturers, vehicle operators, fuelling station operators and others involved in the compressed-natural-gas vehicle industry with information on the fuel quality for natural gas vehicles (NGVs) required to develop and operate compressed-natural-gas vehicle equipment successfully.

STATUS: VOLUNTARY PRICE: 45,000

184. US 947-1:2011, Handling of petroleum products and their derivatives — Part 1: Siting, design and construction of service station

This Uganda Standard covers the siting, design and construction of service stations, installation and operation of equipment in service stations for handling, storage and dispensing of petroleum products and their derivatives, other than equipment used in transportation. **STATUS: COMPULSORY PRICE: 110,000**

185. US ISO 7-1:2007, Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation

This Uganda Standard specifies the requirements for thread form, dimensions, tolerances and designation for jointing pipe threads, sizes 1/16 to 6 inclusive, for joints made pressure-tight by the mating of the threads. These threads are taper external, parallel internal or taper internal and are intended for use with pipes suitable for threading and for valves, fittings or other pipeline equipment interconnected by threaded joints. *(This Uganda Standard is an adoption of the International Standard ISO 7-1:2007).* **STATUS: COMPULSORY PRICE: 30,000**

186. US ISO 844:2007, Rigid cellular plastics — Determination of compression properties

This Uganda Standard specifies a method of determining the compressive strength and corresponding relative deformation, the compressive stress at 10 % relative deformation and when desired, the compressive modulus of rigid cellular plastics. *(This Uganda Standard is an adoption of the International Standard ISO 844:2007).*

STATUS: VOLUNTARY PRICE: 25,000

187. US ISO 845:2006, Cellular plastics and rubbers — Determination of apparent density

This Uganda Standard specifies a method for determining the apparent overall density and the apparent core density of cellular plastics and rubbers. *(This Uganda Standard is an adoption of the International Standard ISO 845:2007).*

STATUS: VOLUNTARY PRICE: 25,000

188. US ISO 4590:2002, Rigid cellular plastics — Determination of the volume percentage of open cells and of closed cells

This Uganda Standard specifies a general procedure for the determination of the volume percentage of open and of closed cells of rigid cellular plastics, by measurement first of the geometrical volume and then of the air impenetrable volume of test specimens. The procedure includes the correction of the apparent open-cell volume by taking into account the surface cells opened by cutting during specimen preparation. Two alternative methods (method 1 and method 2), and corresponding apparatus, are specified for the measurement of the impenetrable volume. *(This Uganda Standard is an adoption of the International Standard ISO 4590:2002).*

STATUS: VOLUNTARY PRICE: 35,000

189. US ISO 1209-1:2007, Rigid cellular plastics — Determination of flexural properties — Part 1: Basic bending test

This Uganda Standard specifies a simple method for assessing the behaviour of a bar of rigid cellular plastic under the action of three-point bending. It may be used to determine either the load for a specified deformation or the load at break.

STATUS: VOLUNTARY PRICE: 20,000

190. US ISO 1209-2:2007, Rigid cellular plastics — Determination of flexural properties — Part 2: Determination of flexural strength and apparent flexural modulus of elasticity

This Uganda Standard specifies a method for determining the flexural strength and the apparent flexural modulus of elasticity of rigid cellular plastics.

STATUS: VOLUNTARY PRICE: 20,000

191. US ISO 1209-2:2007, Rigid cellular plastics — Determination of flexural properties — Part 2: Determination of flexural strength and apparent flexural modulus of elasticity

This Uganda Standard specifies a method for determining the flexural strength and the apparent flexural modulus of elasticity of rigid cellular plastics. *(This Uganda Standard is an adoption of the International Standard ISO 1209-2:2007).*

STATUS: VOLUNTARY PRICE: 20,000