

## Burner - Data Sheet

### Standardization

This Standard replaces and cancels its previous revision.

The CONTEC - Authoring Subcommittee provides guidance on the interpretation of this Standard when questions arise regarding its contents. The Department of PETROBRAS that uses this Standard is responsible for adopting and applying the sections, subsections and enumerates thereof.

**Technical Requirement:** A provision established as the most adequate and which shall be used strictly in accordance with this Standard. If a decision is taken not to follow the requirement ("non-conformity" to this Standard) it shall be based on well-founded economic and management reasons, and be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by imperative nature.

**Recommended Practice:** A provision that may be adopted under the conditions of this Standard, but which admits (and draws attention to) the possibility of there being a more adequate alternative (not written in this Standard) to the particular application. The alternative adopted shall be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by verbs of a nonmandatory nature. It is indicated by the expression: **[Recommended Practice]**.

Copies of the registered "non-conformities" to this Standard that may contribute to the improvement thereof shall be submitted to the CONTEC - Authoring Subcommittee.

Proposed revisions to this Standard shall be submitted to the CONTEC - Authoring Subcommittee, indicating the alphanumeric identification and revision of the Standard, the section, subsection and enumerate to be revised, the proposed text, and technical/economic justification for revision. The proposals are evaluated during the work for alteration of this Standard.

***"The present Standard is the exclusive property of PETRÓLEO BRASILEIRO S.A. - PETROBRAS, for internal use in the Company, and any reproduction for external use or disclosure, without previous and express authorization from the owner, will imply an unlawful act pursuant to the relevant legislation through which the applicable responsibilities shall be imputed. External circulation shall be regulated by a specific clause of Secrecy and Confidentiality pursuant to the terms of intellectual and industrial property law."***

## CONTEC

Comissão de Normalização  
Técnica

## SC - 08

Fired Heaters

### Introduction

*PETROBRAS Technical Standards are prepared by Working Groups - WG (consisting specialized of Technical Collaborators from Company and its Subsidiaries), are commented by Company Units and its Subsidiaries, are approved by the Authoring Subcommittees - SCs (consisting of technicians from the same specialty, representing the various Company Units and its Subsidiaries), and ratified by the Executive Nucleus (consisting of representatives of the Company Units and its Subsidiaries). A PETROBRAS Technical Standard is subject to revision at any time by its Authoring Subcommittee and shall be reviewed every 5 years to be revalidated, revised or cancelled. PETROBRAS Technical Standards are prepared in accordance with PETROBRAS Technical Standard [N-1](#). For complete information about PETROBRAS Technical Standards see PETROBRAS Technical Standards Catalog.*

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## Foreword

This Standard is the English version (issued in 06/2023) of PETROBRAS N-1665 REV. F 06/2023. In case of doubt, the Portuguese version, which is the valid document for all intents and purposes, shall be used.

## 1 Scope

1.1 This Standard standardizes the Data Sheets for burner, to be used in the PETROBRAS designs.

1.2 This Standard applies to designs starting from its issue date.

1.3 The effective period for implementing this Standard in replacement of the previous revision is 180 days from the date of its publication. If the PETROBRAS unit that is applying the Standard understands that it is not possible to implement it within this period, it must register an Implementation Plan within this period defining the necessary actions and the respective deadlines.

1.4 The definition of the effective period for implementing the requirements of this standard, when it is referenced in contracts for the provision of services and acquisition of goods, is the exclusive prerogative of Petrobras.

1.5 This Standard only contains Technical Requirements.

## 2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

PETROBRAS [N-381](#) - Execution of Drawing and Other General Technical Documents;

PETROBRAS [N-1521](#) - Identification of Industrial Equipment;

PETROBRAS [N-1671](#) - Design and Fabrication of Furnace;

ABNT [NBR 10778](#) - Forno Tubular Sujeito a Chama;

API [STD 560](#) - Fired Heaters for General Refinery Service.

**NOTE** For documents referred in this Standard and for which only the Portuguese version is available, the PETROBRAS department that uses this Standard should be consulted for any information required for the specific application.

## 3 General Requirements

3.1 This Standard is founded on the API [STD 560](#) Data Sheet.

3.2 The Data Sheet forms in the Annexes A, B and C are used to record the purchaser's requirements and the design details of the supplier and, after filled out, it shall constitute a permanent document for the equipment.



3.3 The Data Sheet forms in the Annexes A, B and C are standardized in the A4 size as shown in the:

- a) Annex A: form with units in the United States Customary System of Units - USC;
- b) Annex B: form with units in the Engineering System;
- c) Annex C: form with units in the International System of Units - SI.

3.4 The requirements of PETROBRAS [N-381](#) shall be met for filling out the heading and footnote of the Data Sheet in the Annexes A, B and C.

3.5 The applicable Annex of PETROBRAS [N-381](#) shall be used if additional space is required for continuing any item which does not fit in the Annex A, B or C here to.


3.6 The tag number of the fired heater shall be in accordance with PETROBRAS [N-1521](#) and inserted in the heading space reserved for the title Fired Heater, on the right hand corner.


3.7 PETROBRAS [N-1671](#) and ABNT [NBR 10778](#) shall be used for filling out the Data Sheet in the Annexes A and B.

3.8 In the filling of Data Sheet in the Annexes A, B and C, the following requirements shall be followed:

- a) to only fill the applicable fields, eliminating, with a horizontal trace, the not applicable fields to the specific project;
- b) in the blank lines, to add eventual complementary data of the specific project.




 <b>PETROBRAS</b>	<b>DATA SHEET</b>		Nº	Rev.
	AREA:		SHEET of	
	TITLE:			
	<b>BURNER</b>			
1	<b>GENERAL DATA</b>			<b>REV.</b>
2	EQUIPMENT IDENT. WITH BURNER:			
3	TYPE OF HEATER			
4	ALTITUDE ABOVE SEA LEVEL, ft			
5	AIR SUPPLY:			
6	AMBIENT/PREHEATED AIR/GAS TURBINE EXHAUST			
7	TEMPERATURE, °F (MIN./MAX./DESIGN)			
8	RELATIVE HUMIDITY %			
9	DRAUGHT TYPE: FORCED / NATURAL / INDUCED			
10	DRAUGHT AVAILABLE ACROSS BURNER, in H <sub>2</sub> O			
11	ACROSS PLENUM, in H <sub>2</sub> O			
12	REQUIRED TURNDOWN			
13	BURNER-WALL LINING THICKNESS, in			
14	HEATER-CASING THICKNESS, in			
15	FIREBOX HEIGHT, in			
16	TUBE-CIRCLE DIAMETER, in			
17	<b>BURNER DATA</b>			
18	MANUFACTURER			
19	TYPE OF BURNER			
20	MODEL/SIZE			
21	DIRECTION OF FIRING			
22	LOCATION (ROOF/FLOOR/SIDEWALL)			
23	NUMBER REQUIRED			
24	MINIMUM DISTANCE BURNER CENTRE-LINE, in			
25	TO TUBE CENTRE-LINE (HORIZONTAL/VERTICAL)			
26	TO ADJACENT BURNER CENTRE-LINE (HORIZONTAL/VERTICAL)			
27	TO UNSHIELDED REFRACTORY (HORIZONTAL/VERTICAL)			
28	BURNER-CIRCLE DIAMETER, in			
29	PILOTS:			
30	NUMBER REQUIRED			
31	TYPE			
32	IGNITION METHOD			
33	FUEL			
34	FUEL PRESSURE, psig			
35	CAPACITY, BTU/h			
36	<b>OPERATING DATA</b>			
37	FUEL			
38	HEAT RELEASE PER BURNER, MMBTU/h (LHV)			
39	DESIGN			
40	NORMAL			
41	MINIMUM			
42	EXCESS AIR @ DESIGN HEAT RELEASE, (%)			
43	AIR TEMPERATURE TO BURNERS, °F			
44	AIR PRESSURE TO BURNERS, in H <sub>2</sub> O			
45	DRAUGHT LOSS, in H <sub>2</sub> O			
46	DESIGN			
47	NORMAL			
48	MINIMUM			
49	FUEL PRESSURE REQUIRED @ BURNERS, psig			
50	FLAME LENGTH @ DESIGN HEAT RELEASE, ft			
51	FLAME SHAPE (ROUND, FLAT, ETC.)			
52	ATOMIZING MEDIUM / OIL RATIO, lb/lb			
53	NOTES:			
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THIS FORM IS PART OF PETROBRAS STANDARD N-1665 REV. F ANNEX A - SHEET 02/04.				

 <b>PETROBRAS</b>	<b>DATA SHEET</b>		Nº	Rev.	
	AREA:		SHEET of		
	TITLE:				
		<b>BURNER</b>			
1	<b>GAS FUEL CHARACTERISTICS</b>				REV.
2	FUEL TYPE				
3	MASSIC HEAT VALUE (LHV), BTU/lb				
4	RELATIVE DENSITY (AIR = 1,0)				
5	MOLECULAR WEIGHT				
6	FUEL TEMPERATURE @ BURNER, °F				
7	FUEL PRESSURE AVAILABLE @ BURNER, psig				
8	FUEL GAS COMPOSITION (MOLE %)				
9					
10					
11					
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18					
19					
20					
21	TOTAL				
22	<b>LIQUID FUEL CHARACTERISTICS</b>				
23	FUEL TYPE				
24	MASSIC HEAT VALUE (LHV), BTU/lb				
25	RELATIVE DENSITY (AT 60 °F)				
26	H/C RATIO (BY MASS)				
27	VISCOSITY, @ °F, cSt				
28	VISCOSITY, @ °F, cSt				
29	VANADIUM, ppm				
30	POTASSIUM, ppm				
31	SODIUM, ppm				
32	NICKEL, ppm				
33	FIXED NITROGEN, ppm				
34	SULFUR, MASS FRACTION (%)				
35	ASH, MASS FRACTION (%)				
36	WATER, MASS FRACTION (%)				
37	DISTILLATION: ASTM INITIAL BOILING POINT, °F				
38	ASTM MID-POINT, °F				
39	ASTM END-POINT, °F				
40	FUEL TEMPERATURE @ BURNER, °F				
41	FUEL PRESSURE AVAILABLE @ BURNER, psig				
42	ATOMIZING MEDIUM: AIR/STEAM/MECHANICAL				
43	TEMPERATURE, °F				
44	PRESSURE, psig				
45	NOTES:				
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	<b>DATA SHEET</b>		Nº	Rev.
	AREA:		SHEET of	
	TITLE:			
	<b>BURNER</b>			
1	<b>MISCELLANEOUS</b>			REV.
2	BURNER PLENUM:	COMMON / INTEGRAL		
3		MATERIAL		
4		PLATE THICKNESS, in		
5		INTERNAL INSULATION		
6	INLET AIR CONTROL:	DAMPER OR REGISTERS		
7		MODE OF OPERATION		
8		LEAKAGE, %		
9	BURNER TILE:	COMPOSITION		
10		MINIMUM SERVICE TEMPERATURE, °F		
11	NOISE SPECIFICATION			
12	ATTENUATION METHOD			
13	PAINTING REQUIREMENTS			
14	IGNITION PORT:	SIZE/NO.		
15	SIGHT PORT:	SIZE/NO.		
16	FLAME DETECTION:	TYPE		
17		NUMBER/LOCATION		
18	SCANNER CONNECTION:	SIZE/NO.		
19	SAFETY INTERLOCK SYSTEM FOR ATOMIZING MEDIUM AND OIL			
20	PERFORMANCE TEST REQUIRED (YES OR NO)			
21	<b>EMISSION LIMITS</b>			
22	FIREBOX BRIDGEWALL TEMPERATURE, °F			
23	NO <sub>x</sub>	*ppm		
24	CO	*ppm		
25	UHC	*ppm³ OR lb/MMBTU (LHV) (HHV)		
26	PARTICULATES	*ppm³ OR lb/MMBTU (LHV) (HHV)		
27	SO <sub>x</sub>	*ppm		
28				
29	*CORRECTED TO 3% O <sub>2</sub> (DRY BASIS @ DESIGN HEAT RELEASE)			
30	<b>GENERAL NOTES</b>			
31	1- AT DESIGN CONDITIONS, A MINIMUM OF 90% OF THE AVAILABLE DRAUGHT WITH AIR REGISTER FULLY OPEN SHALL BE UTILIZED			
32	ACROSS THE BURNER.			
33	2 - VENDOR TO GARANTEE BURNER FLAME LENGTH.			
34	3 - VENDOR TO GARANTEE EXCESS AIR, HEAT RELEASE AND DRAUGHT LOSS ACROSS BURNER.			
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	<b>DATA SHEET</b>		Nº	Rev.
	AREA:		SHEET of	
	TITLE:			
	<b>BURNER</b>			
1	<b>GENERAL DATA</b>			REV.
2	EQUIPMENT IDENT. WITH BURNER:			
3	TYPE OF HEATER			
4	ALTITUDE ABOVE SEA LEVEL, m			
5	AIR SUPPLY:			
6	AMBIENT/PREHEATED AIR/GAS TURBINE EXHAUST			
7	TEMPERATURE, °C (MIN./MAX./DESIGN)			
8	RELATIVE HUMIDITY %			
9	DRAUGHT TYPE: FORCED / NATURAL / INDUCED			
10	DRAUGHT AVAILABLE ACROSS BURNER, mm H <sub>2</sub> O			
11	ACROSS PLENUM, mm H <sub>2</sub> O			
12	REQUIRED TURNDOWN			
13	BURNER-WALL LINING THICKNESS, mm			
14	HEATER-CASING THICKNESS, mm			
15	FIREBOX HEIGHT, mm			
16	TUBE-CIRCLE DIAMETER, mm			
17	<b>BURNER DATA</b>			
18	MANUFACTURER			
19	TYPE OF BURNER			
20	MODEL/SIZE			
21	DIRECTION OF FIRING			
22	LOCATION (ROOF/FLOOR/SIDEWALL)			
23	NUMBER REQUIRED			
24	MINIMUM DISTANCE BURNER CENTRE-LINE, mm			
25	TO TUBE CENTRE-LINE (HORIZONTAL/VERTICAL)			
26	TO ADJACENT BURNER CENTRE-LINE (HORIZONTAL/VERTICAL)			
27	TO UNSHIELDED REFRACTORY (HORIZONTAL/VERTICAL)			
28	BURNER-CIRCLE DIAMETER, mm			
29	PILOTS:			
30	NUMBER REQUIRED			
31	TYPE			
32	IGNITION METHOD			
33	FUEL			
34	FUEL PRESSURE, kgf/cm <sup>2</sup> (ga)			
35	CAPACITY, kcal/h			
36	<b>OPERATING DATA</b>			
37	FUEL			
38	HEAT RELEASE PER BURNER, 10 <sup>6</sup> kcal/h (LHV)			
39	DESIGN			
40	NORMAL			
41	MINIMUM			
42	EXCESS AIR @ DESIGN HEAT RELEASE, (%)			
43	AIR TEMPERATURE TO BURNERS, °C			
44	AIR PRESSURE TO BURNERS, mm H <sub>2</sub> O			
45	DRAUGHT LOSS, mm H <sub>2</sub> O			
46	DESIGN			
47	NORMAL			
48	MINIMUM			
49	FUEL PRESSURE REQUIRED @ BURNERS, kgf/cm <sup>2</sup> (ga)			
50	FLAME LENGTH @ DESIGN HEAT RELEASE, m			
51	FLAME SHAPE (ROUND, FLAT, ETC.)			
52	ATOMIZING MEDIUM / OIL RATIO, kg/kg			
53	NOTES:			
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	<b>DATA SHEET</b>		Nº	Rev.	
	AREA:		SHEET of		
	TITLE:				
		<b>BURNER</b>			
1	<b>GAS FUEL CHARACTERISTICS</b>				REV.
2	FUEL TYPE				
3	MASSIC HEAT VALUE (LHV), kcal/kg				
4	RELATIVE DENSITY (AIR = 1,0)				
5	MOLECULAR WEIGHT				
6	FUEL TEMPERATURE @ BURNER, °C				
7	FUEL PRESSURE AVAILABLE @ BURNER, kgf/cm² (ga)				
8	FUEL GAS COMPOSITION (MOLE %)				
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11					
12					
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16					
17					
18					
19					
20					
21	TOTAL				
22	<b>LIQUID FUEL CHARACTERISTICS</b>				
23	FUEL TYPE				
24	MASSIC HEAT VALUE (LHV), kcal/kg				
25	RELATIVE DENSITY (AT 15 °C)				
26	H/C RATIO (BY MASS)				
27	VISCOSITY, @ °C, cSt				
28	VISCOSITY, @ °C, cSt				
29	VANADIUM, mg/kg				
30	POTASSIUM, mg/kg				
31	SODIUM, mg/kg				
32	NICKEL, mg/kg				
33	FIXED NITROGEN, mg/kg				
34	SULFUR, MASS FRACTION (%)				
35	ASH, MASS FRACTION (%)				
36	WATER, MASS FRACTION (%)				
37	DISTILLATION: ASTM INITIAL BOILING POINT, °C				
38	ASTM MID-POINT, °C				
39	ASTM END-POINT, °C				
40	FUEL TEMPERATURE @ BURNER, °C				
41	FUEL PRESSURE AVAILABLE @ BURNER, kgf/cm² (ga)				
42	ATOMIZING MEDIUM: AIR/STEAM/MECHANICAL				
43	TEMPERATURE, °C				
44	PRESSURE, kgf/cm² (ga)				
45	NOTES:				
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	<b>DATA SHEET</b>		Nº	Rev.
	AREA:		SHEET of	
	TITLE:			
		<b>BURNER</b>		
1	<b>MISCELLANEOUS</b>			<b>REV.</b>
2	BURNER PLENUM:	COMMON / INTEGRAL		
3		MATERIAL		
4		PLATE THICKNESS, mm		
5		INTERNAL INSULATION		
6	INLET AIR CONTROL:	DAMPER OR REGISTERS		
7		MODE OF OPERATION		
8		LEAKAGE, %		
9	BURNER TILE:	COMPOSITION		
10		MINIMUM SERVICE TEMPERATURE, °C		
11	NOISE SPECIFICATION			
12	ATTENUATION METHOD			
13	PAINTING REQUIREMENTS			
14	IGNITION PORT:	SIZE/NO.		
15	SIGHT PORT:	SIZE/NO.		
16	FLAME DETECTION:	TYPE		
17		NUMBER/LOCATION		
18	SCANNER CONNECTION:	SIZE/NO.		
19	SAFETY INTERLOCK SYSTEM FOR ATOMIZING MEDIUM AND OIL			
20	PERFORMANCE TEST REQUIRED (YES OR NO)			
21	<b>EMISSION LIMITS</b>			
22	FIREBOX BRIDGEWALL TEMPERATURE, °C			
23	NO <sub>x</sub>	*mg/Nm³ OR ppm		
24	CO	*mg/Nm³ OR ppm		
25	UHC	*mg/Nm³ OR g/10⁶ kcal (LHV) (HHV)		
26	PARTICULATES	*mg/Nm³ OR g/10⁶ kcal (LHV) (HHV)		
27	SO <sub>x</sub>	*mg/Nm³ OR ppm		
28				
29	*CORRECTED TO 3% O₂ (DRY BASIS @ DESIGN HEAT RELEASE)			
30	<b>GENERAL NOTES</b>			
31	1- AT DESIGN CONDITIONS, A MINIMUM OF 90% OF THE AVAILABLE DRAUGHT WITH AIR REGISTER FULLY OPEN SHALL BE UTILIZED			
32	ACROSS THE BURNER.			
33	2 - VENDOR TO GARANTEE BURNER FLAME LENGTH.			
34	3 - VENDOR TO GARANTEE EXCESS AIR, HEAT RELEASE AND DRAUGHT LOSS ACROSS BURNER.			
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 <b>PETROBRAS</b>	<b>DATA SHEET</b>		Nº	Rev.
	AREA:		SHEET of	
	TITLE:			
	<b>BURNER</b>			
1	<b>GENERAL DATA</b>			REV.
2	EQUIPMENT IDENT. WITH BURNER:			
3	TYPE OF HEATER			
4	ALTITUDE ABOVE SEA LEVEL, m			
5	AIR SUPPLY:			
6	AMBIENT/PREHEATED AIR/GAS TURBINE EXHAUST			
7	TEMPERATURE, °C (MIN./MAX./DESIGN)			
8	RELATIVE HUMIDITY %			
9	DRAUGHT TYPE: FORCED / NATURAL / INDUCED			
10	DRAUGHT AVAILABLE ACROSS BURNER, Pa			
11	ACROSS PLENUM, Pa			
12	REQUIRED TURNDOWN			
13	BURNER-WALL LINING THICKNESS, mm			
14	HEATER-CASING THICKNESS, mm			
15	FIREBOX HEIGHT, mm			
16	TUBE-CIRCLE DIAMETER, mm			
17	<b>BURNER DATA</b>			
18	MANUFACTURER			
19	TYPE OF BURNER			
20	MODEL/SIZE			
21	DIRECTION OF FIRING			
22	LOCATION (ROOF/FLOOR/SIDEWALL)			
23	NUMBER REQUIRED			
24	MINIMUM DISTANCE BURNER CENTRE-LINE, mm			
25	TO TUBE CENTRE-LINE (HORIZONTAL/VERTICAL)			
26	TO ADJACENT BURNER CENTRE-LINE (HORIZONTAL/VERTICAL)			
27	TO UNSHIELDED REFRACTORY (HORIZONTAL/VERTICAL)			
28	BURNER-CIRCLE DIAMETER, mm			
29	PILOTS:			
30	NUMBER REQUIRED			
31	TYPE			
32	IGNITION METHOD			
33	FUEL			
34	FUEL PRESSURE, kPa			
35	CAPACITY, MW			
36	<b>OPERATING DATA</b>			
37	FUEL			
38	HEAT RELEASE PER BURNER, MW (LHV)			
39	DESIGN			
40	NORMAL			
41	MINIMUM			
42	EXCESS AIR @ DESIGN HEAT RELEASE, (%)			
43	AIR TEMPERATURE TO BURNERS, °C			
44	AIR PRESSURE TO BURNERS, Pa			
45	DRAUGHT LOSS, Pa			
46	DESIGN			
47	NORMAL			
48	MINIMUM			
49	FUEL PRESSURE REQUIRED @ BURNERS, kPa			
50	FLAME LENGTH @ DESIGN HEAT RELEASE, m			
51	FLAME SHAPE (ROUND, FLAT, ETC.)			
52	ATOMIZING MEDIUM / OIL RATIO, kg/kg			
53	NOTES:			
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THIS FORM IS PART OF PETROBRAS STANDARD N-1665 REV. F ANNEX C - SHEET 02/04.				

	<b>DATA SHEET</b>		Nº	Rev.	
	AREA:		SHEET of		
	TITLE:				
		<b>BURNER</b>			
1	<b>GAS FUEL CHARACTERISTICS</b>				REV.
2	FUEL TYPE				
3	MASSIC HEAT VALUE (LHV), kJ/kg				
4	RELATIVE DENSITY (AIR = 1,0)				
5	MOLECULAR WEIGHT				
6	FUEL TEMPERATURE @ BURNER, °C				
7	FUEL PRESSURE AVAILABLE @ BURNER, kPa (ga)				
8	FUEL GAS COMPOSITION (MOLE %)				
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21	TOTAL				
22	<b>LIQUID FUEL CHARACTERISTICS</b>				
23	FUEL TYPE				
24	MASSIC HEAT VALUE (LHV), kJ/kg				
25	RELATIVE DENSITY (AT 15 °C)				
26	H/C RATIO (BY MASS)				
27	VISCOSITY, @ °C, cSt				
28	VISCOSITY, @ °C, cSt				
29	VANADIUM, mg/kg				
30	POTASSIUM, mg/kg				
31	SODIUM, mg/kg				
32	NICKEL, mg/kg				
33	FIXED NITROGEN, mg/kg				
34	SULFUR, MASS FRACTION (%)				
35	ASH, MASS FRACTION (%)				
36	WATER, MASS FRACTION (%)				
37	DISTILLATION: ASTM INITIAL BOILING POINT, °C				
38	ASTM MID-POINT, °C				
39	ASTM END-POINT, °C				
40	FUEL TEMPERATURE @ BURNER, °C				
41	FUEL PRESSURE AVAILABLE @ BURNER, kPa (ga)				
42	ATOMIZING MEDIUM: AIR/STEAM/MECHANICAL				
43	TEMPERATURE, °C				
44	PRESSURE, kPa (ga)				
45	NOTES:				
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	<b>DATA SHEET</b>		Nº	Rev.
	AREA:		SHEET of	
	TITLE:			
	<b>BURNER</b>			
1	<b>MISCELLANEOUS</b>			REV.
2	BURNER PLENUM:	COMMON / INTEGRAL		
3		MATERIAL		
4		PLATE THICKNESS, mm		
5		INTERNAL INSULATION		
6	INLET AIR CONTROL:	DAMPER OR REGISTERS		
7		MODE OF OPERATION		
8		LEAKAGE, %		
9	BURNER TILE:	COMPOSITION		
10		MINIMUM SERVICE TEMPERATURE, °C		
11	NOISE SPECIFICATION			
12	ATTENUATION METHOD			
13	PAINTING REQUIREMENTS			
14	IGNITION PORT:	SIZE/NO.		
15	SIGHT PORT:	SIZE/NO.		
16	FLAME DETECTION:	TYPE		
17		NUMBER/LOCATION		
18	SCANNER CONNECTION:	SIZE/NO.		
19	SAFETY INTERLOCK SYSTEM FOR ATOMIZING MEDIUM AND OIL			
20	PERFORMANCE TEST REQUIRED (YES OR NO)			
21	<b>EMISSION LIMITS</b>			
22	FIREBOX BRIDGEWALL TEMPERATURE, °C			
23	NO <sub>x</sub>	*mg/Nm³ OR ppm		
24	CO	*mg/Nm³ OR ppm		
25	UHC	*mg/Nm³ OR g/GJ (LHV) (HHV)		
26	PARTICULATES	*mg/Nm³ OR g/GJ (LHV) (HHV)		
27	SO <sub>x</sub>	*mg/Nm³ OR ppm		
28				
29	*CORRECTED TO 3% O <sub>2</sub> (DRY BASIS @ DESIGN HEAT RELEASE)			
30	<b>GENERAL NOTES</b>			
31	1- AT DESIGN CONDITIONS, A MINIMUM OF 90% OF THE AVAILABLE DRAUGHT WITH AIR REGISTER FULLY OPEN SHALL BE UTILIZED			
32	ACROSS THE BURNER.			
33	2 - VENDOR TO GARANTEE BURNER FLAME LENGTH.			
34	3 - VENDOR TO GARANTEE EXCESS AIR, HEAT RELEASE AND DRAUGHT LOSS ACROSS BURNER.			
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INDEX OF REVISIONS	
<b>REV. A, B and C</b>	
There is no index of revisions.	
<b>REV. D</b>	
Affected Parts	Description of Alteration
	Revalidation
<b>REV. E</b>	
Affected Parts	Description of Alteration
All	Revision
Forms	Adapted to ISO <a href="#">13705</a>
<b>REV. F</b>	
Affected Parts	Description of Alteration
Section 1	Added paragraphs referring to deadlines for implementation of this revision of the Standard
Section 2	ISO <a href="#">13705</a> standard replaced by API <a href="#">STD 560</a> standard
Subsection 3.1	ISO <a href="#">13705</a> standard replaced by API <a href="#">STD 560</a> standard
Subsection 3.3	<p>Wording changed as follows:</p> <p>“The Data Sheet forms in the Annexes A, B and C are standardized in the A4 size as shown in the:</p> <p>a) Annex A: form with units in the United States Customary System of Units - USC;  b) Annex B: form with units in the Engineering System;  c) Annex C: form with units in the International System of Units - SI.”</p>
Subsection 3.4	<p>Wording changed as follows:</p> <p>“The requirements of PETROBRAS <a href="#">N-381</a> shall be met for filling out the heading and footnote of the Data Sheet in the Annexes A, B and C.”</p>
Subsection 3.8	<p>Wording changed as follows:</p> <p>“In the filling of Data Sheet in the Annexes A, B and C...”</p>
Subsection 3.9	Deleted because the access link to the forms is no longer necessary, as the Excel files with them are already attached to the PDF file of the Standard.
Forms	<p>Adapted to API <a href="#">STD 560</a> in three annexes:</p> <p>a) Annex A: form with units in the United States Customary System of Units - USC;  b) Annex B: form with units in the Engineering System;  c) Annex C: form with units in the International System of Units - SI.</p>