



**KEMPER COUNTRY  
IGCC UNIT 1 PROJECT**



**HYDROSTATIC TEST PROCEDURE**

**ITEM NAME : Selexol Flash, KO & Reflux Drum**

**( ITEM NO : DR1060 / 2060, DR1061 / 2061, DR1062 / 2062,  
DR1063 / 2063, DR1064 / 2064, DR1065 / 2065,  
DR1080 / 2080, DR1168 / 2168/1268/2268)**

<b>KBR</b>	
ACCEPTANCE FOR ENGINEERING USE	
THIS DOCUMENT IS:	
ACCEPTED	(Code 1) <u> X </u>
ACCEPTED WITH COMMENTS	(Code 2) <u>    </u>
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ACCEPTANCE DOES NOT RELIEVE SUPPLIER FROM FURNISHING MATERIAL IN CONFORMANCE WITH ORDER. REFER TO SDR-1 FOR FULL DEFINITION OF ACCEPTANCE CONDITIONS.	
DISCIPLINE <u> MD </u>	BY <u> TM </u>
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<b>CLIENT</b>	<b>: SOUTHERN COMPANY SERVICES</b>
<b>VENDOR</b>	<b>: SUNGJIN GEOTEC CO., LTD.</b>
<b>PLANT</b>	<b>: KEMPER COUNTRY</b>
<b>Doc. Title</b>	<b>: HYDROSTATIC TEST PROCEDURE</b>
<b>PO No.</b>	<b>: MPC17984-0001</b>
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**Southern Company Generation    Kemper County**  
MM95124    A    Unit 1

SUNGJIN GEOTECH    PO: MPC17984-0001  
SGT11-SP11-HYP-001    Rev: 1  
IGCC - GASIFIER - MULTIPAGE - IPS SERVICES FOR SELEXOL FLASH-KO &

## CONTENTS

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- 1.0 Scope
- 2.0 Applicable & job specification
- 3.0 Responsibility
- 4.0 Check of Test Equipment
- 5.0 Air leak test
- 6.0 Procedure (Hydrostatic)
- 7.0 Final Cleaning
- 8.0 Preparation of Test Report

- ▶ Appendix :
  - (a) Pressure Test Report (Sample)

## 1.0 Scope

This procedure applies to the pressure test of the pressure vessels and heat exchangers constructed by the SGT, in accordance with applicable edition and addenda of ASME Sect. VIII **Div. 1**, and purchaser job specifications.

## 2.0 Applicable Code & Job specification

### 2.1 Code & Standard

- ASME Sec. VIII Div.1 ----- 2007 Edition + 2010 Addition

### 2.2 Job specification.

- 3-11-6 (PRESSURE VESSELS CARBON STEEL)

- 3-15-4 (PRESSURE VESSELS AUSTENITIC STAINLESS STEEL)

- MD40-1F-US-ON-M&U (PRESSURE VESSELS)

## 3.0 Responsibility

3.1 The required pressure test for the completed fabrication shall be performed in accordance with this procedure.

3.2 The Mfg. Dept shall be responsible for the setting up of the test equipment, venting of the air, and operation of the pressure pump.

3.3 Q.A Inspector is responsible for inspection of welded joints and connections during this test.

Upon satisfactory completion of pressure test, the pressure test report shall be prepared by Q.A Inspector, reviewed and approved by Q.A Dept Manager and SOUTHERN or 3rd party Inspector.

## 4.0 Check of Test Equipment

4.1 Before applying pressure, the test equipment shall be examined to see that it is tight and that all low-pressure filling lines and other appurtenances that should not be subjected to the test pressure have been disconnected or isolated by valves or other suitable means.

**Austenitic Stainless Steel Service Bolts not to be used.**

4.2 Dial indicating pressure gages used in testing shall be graduated over a range of about double the intended maximum test pressure, but in no case shall the range be less than 1-½ nor greater than 4 times that pressure.

4.3 An indicating gage shall be connected directly to the pressure vessel.

If the indicating gage is not readily visible to the operator controlling the pressure applied, an additional indicating gage shall be provided where it will be visible to the operator throughout the duration of the test.

(Minimum 2 numbers of gauge shall be used to indicate the pressure)

## 5.0 Air leak test

### 5.1 Pad Leak Test

**Prior to Post Weld Heat Treatment**, each nozzle reinforcing pad or each segment thereof shall be tested at 25 psig (172 kPa) in accordance with ASME Section V, Article T-1031 and T-1032 with dry air. All welds inside and outside the vessel shall be inspected during the test. Test holes in pads shall be left open after the test.

## 6.0 Procedure (Hydrostatic)

6.1 All NDT, including final visual inspection (except for hydrotest), PWHT, dimensional checks shall be carried out and accepted by SUNGJIN inspector and client before hydrostatic testing.

6.2 Before the hydrotest, all internal surfaces shall be cleaned by sweeping, vacuum cleaning, or other methods so the vessel will be free of welding slag and flux, weld rod stubs, loose scale, dirt, and debris.

6.3 Vessels shall be pressure tested before internal and external painting and lining.

6.4 Air vents shall be provided at all high points of the vessel in the position in which it is to be tested to purge possible air pockets while the vessel is being filled with test liquid.

6.5 The test pressure shall not be applied until the vessel and its contents are at about same temperature.

The test pressure shall be at least equal to;

For Div.1 item : 1.3 times the maximum allowable working pressure(MAWP), multiplied by the lowest ratio of the stress value S for the test temperature on the vessel to the stress value S for the design temperature.

If there is any discrepancy between drawing requirements and this procedure, the drawing requirements shall govern.

6.6 Care shall be taken to prevent visible permanent distortion on resulted from high pressure.

**Stress shall not exceed 90% material's minimum yield strength times joint efficiency including local loads from hydro supports.**

### 6.7 Holding time

Vessels shall be hydrostatically tested in accordance with the applicable code to the test pressure specified on the vessel drawing or data sheet. The test pressure shall be held for at least one hour. The test pressure shall be shown on the manufacturer's drawings.

### 6.8 The temperature

The temperature of the vessel wall during the test shall be a minimum of 30 °F (17 °C) above the vessel Minimum Design Metal Temperature.

**Minimum test water temperature shall be at least 50 degree F**

### 6.9 Water

Vessels shall be hydrostatically tested with potable water only; salt, brackish, or raw river water shall not be used. Testing of vessels or components made of austenitic stainless steel or austenitic

stainless steel clad materials shall be conducted with water containing no more than 50 ppm chloride; water containing more than 50 ppm chloride but no more than 250 ppm may be used only if the duration of the test procedure is 72 hours or less and includes rinsing with water containing less than 50 ppm chloride.

Water greater than 50ppm but less than 250ppm Chloride shall have a sufficient of sodium nitrate solution per Specification 3-11-6, paragraph 7.1c

#### 6.10 Inspection

Following the application of the hydrostatic test pressure, visual examination shall be made for all joints and connections by QC Inspector and Authorized Inspector and/or Third Party Inspector as well as Certifying Authority. This examination shall be made after pass specified holding time.

Ensure the requirements of UG-99(g) are considered.

#### 7.0 Final Cleaning

7.1 All water shall be drained after hydrostatic testing. Any standing water in austenitic stainless steel or austenitic stainless clad vessels shall be removed by blowing with air or by swabbing; heat or hot air shall not be used for drying.

#### 8.0 Preparation of Test Report

8.1 Upon completion of pressure test, the pressure test report shall be prepared by Q.A

Inspector using the format attached herewith and shall be signed by AI & TPI after success for completion of testing.

8.2 A calibration certificate of pressure gauge and dead weight tester shall also be included.

Appendix (a) : Pressure Test Report

 성진지오택 (주)	<b>PRESSURE TEST REPORT</b> <b>압력시험 성적서</b>		Doc. No.	
			Page	1 OF 2
Work Order No.		Customer		
Project Name		Item Name		
Item No.		Drawing No.		
Material		Appl. Code		
	<b>Shell Side</b>		<b>Tube Side</b>	
Design Pressure(INT)		<b>Psig</b>		<b>Psig</b>
Type of Test	<b>Hydrostatic</b>	<b>Pneumatic</b>	<b>Hydrostatic</b>	<b>Hydrostatic (after Ass'y)</b>
Fluid Type		===BLANK===	===BLANK===	===BLANK===
Test Pressure	psig kg / cm <sup>2</sup>			
Test Temperature	℃			
Holding Time		Sample		
Guage I.D No.				
Amb. Temp	℃			
Actual Pressure :	kg / cm <sup>2</sup>			
Date				
Result				
Sketch :				
<input type="checkbox"/> Witnessed by / <input type="checkbox"/> Reviewed by		Approved by : _____ Prepared by : _____ Inspection Date : _____		
IQP-10-01K		A4(210mmx297mm)		