



Toase-che Park Sanati Gohar Ofogh  
Petrochemical Co.  
**CONCEPTUAL, BASIC and DETAIL DESIGN  
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: N2 Purging Procedure

Document No.: EI027-DMF-VD-QC-PRO-029

Rev. R0

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# STYRENE PARK OFFSITE

**Document Title:**  
**N2 Purging Procedure**

|             |                    |                    |                 |                |                 |
|-------------|--------------------|--------------------|-----------------|----------------|-----------------|
|             |                    |                    |                 |                |                 |
|             |                    |                    |                 |                |                 |
| R0          | 08-Oct.-2024       | IFA                | A.Parsafar      | A.Shadmand     | M.Heidarzadeh   |
| <b>Rev.</b> | <b>Issued Date</b> | <b>DESCRIPTION</b> | <b>PREPARED</b> | <b>CHECKED</b> | <b>APPROVED</b> |



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**REVISION RECORD SHEET**

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|------|-----------|----|----|----|----|----|----|------|-----------|----|----|----|----|----|----|
|      | R0        | R1 | R2 | R3 | R4 | R5 | R6 |      | R0        | R1 | R2 | R3 | R4 | R5 | R6 |
| 1    | X         |    |    |    |    |    |    | 41   |           |    |    |    |    |    |    |
| 2    | X         |    |    |    |    |    |    | 42   |           |    |    |    |    |    |    |
| 3    | X         |    |    |    |    |    |    | 43   |           |    |    |    |    |    |    |
| 4    | X         |    |    |    |    |    |    | 44   |           |    |    |    |    |    |    |
| 5    | X         |    |    |    |    |    |    | 45   |           |    |    |    |    |    |    |
| 6    | X         |    |    |    |    |    |    | 46   |           |    |    |    |    |    |    |
| 7    | X         |    |    |    |    |    |    | 47   |           |    |    |    |    |    |    |
| 8    | X         |    |    |    |    |    |    | 48   |           |    |    |    |    |    |    |
| 9    | X         |    |    |    |    |    |    | 49   |           |    |    |    |    |    |    |
| 10   |           |    |    |    |    |    |    | 50   |           |    |    |    |    |    |    |
| 11   |           |    |    |    |    |    |    | 51   |           |    |    |    |    |    |    |
| 12   |           |    |    |    |    |    |    | 52   |           |    |    |    |    |    |    |
| 13   |           |    |    |    |    |    |    | 53   |           |    |    |    |    |    |    |
| 14   |           |    |    |    |    |    |    | 54   |           |    |    |    |    |    |    |
| 15   |           |    |    |    |    |    |    | 55   |           |    |    |    |    |    |    |
| 16   |           |    |    |    |    |    |    | 56   |           |    |    |    |    |    |    |
| 17   |           |    |    |    |    |    |    | 57   |           |    |    |    |    |    |    |
| 18   |           |    |    |    |    |    |    | 58   |           |    |    |    |    |    |    |
| 19   |           |    |    |    |    |    |    | 59   |           |    |    |    |    |    |    |
| 20   |           |    |    |    |    |    |    | 60   |           |    |    |    |    |    |    |
| 21   |           |    |    |    |    |    |    | 61   |           |    |    |    |    |    |    |
| 22   |           |    |    |    |    |    |    | 62   |           |    |    |    |    |    |    |
| 23   |           |    |    |    |    |    |    | 63   |           |    |    |    |    |    |    |
| 24   |           |    |    |    |    |    |    | 64   |           |    |    |    |    |    |    |
| 25   |           |    |    |    |    |    |    | 65   |           |    |    |    |    |    |    |
| 26   |           |    |    |    |    |    |    | 66   |           |    |    |    |    |    |    |
| 27   |           |    |    |    |    |    |    | 67   |           |    |    |    |    |    |    |
| 28   |           |    |    |    |    |    |    | 68   |           |    |    |    |    |    |    |
| 29   |           |    |    |    |    |    |    | 69   |           |    |    |    |    |    |    |
| 30   |           |    |    |    |    |    |    | 70   |           |    |    |    |    |    |    |
| 31   |           |    |    |    |    |    |    | 71   |           |    |    |    |    |    |    |
| 32   |           |    |    |    |    |    |    | 72   |           |    |    |    |    |    |    |
| 33   |           |    |    |    |    |    |    | 73   |           |    |    |    |    |    |    |
| 34   |           |    |    |    |    |    |    | 74   |           |    |    |    |    |    |    |
| 35   |           |    |    |    |    |    |    | 75   |           |    |    |    |    |    |    |
| 36   |           |    |    |    |    |    |    | 76   |           |    |    |    |    |    |    |
| 37   |           |    |    |    |    |    |    | 77   |           |    |    |    |    |    |    |
| 38   |           |    |    |    |    |    |    | 78   |           |    |    |    |    |    |    |
| 39   |           |    |    |    |    |    |    | 79   |           |    |    |    |    |    |    |
| 40   |           |    |    |    |    |    |    | 80   |           |    |    |    |    |    |    |

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| <br> | <b>Toase-eh Park Sanati Gohar Ofogh<br/> Petrochemical Co.</b><br><b>CONCEPTUAL, BASIC and DETAIL DESIGN<br/> ENGINEERING OF STYRENE PARK OFFSITE</b> |  | <br> |             |
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## 1. PURPOSE

This procedure covers the requirements and instructions to be followed by the DAMAFIN for nitrogen filling of **Air Cooler's** that will be procured in “Toase-eh Park Sanati Gohar Ofogh Petrochemical Co. CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF STYRENE PARK OFFSITE” project.

## 2. SCOPE

This procedure is applicable for nitrogen filling of **Air Cooler's**.

## 3. REFERENCES

- DAMAFIN SPECIFICATION
- API 661- Latest Edition
- Packing, Marking and Shipping Procedure (EI027-DMF-VD-QC-PRO-027)

## 4. RESPONSIBILITY






DAMAFIN is solely responsible for nitrogen purging of shell & tube.

## 5. PACKING FOR TUBE BUNDLES

### 5.1. Drying of Tube bundles

- Horizontal bundle to be lifted by 1 or 2 Cranes, each of them to hold one header.
- Unit to be alternatively tilted to one side and to the other (30 degrees).
- Then bundle to be laid down horizontally.
- Then bundle to be dried by hot air circulation for at least 3 hours.

5.2. All flange facing shall be covered and couplings plugged to prevent damage. Flange cover shall be 6mm steel plates bolted to the flange with a minimum of 4 bolts.

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5.3. Machined surfaces, flange faces and threads of bolts shall be coated with heavy rust preventive grease to prevent corrosion during shipment and storage.

5.4. Flanges and connections shall be closed with blind flanges and plugs. Permanent blind flanges or covers included in the vendor's scope shall be bolted with service stud bolts and nuts.

5.5. External surfaces of header box and surface of plugs shall be painted (thin layer) with the paint that used for last layer of painting header boxes.






5.6. External surfaces of bundles frame shall be cleaned and four damafin marks "DTT" shall be painted at the side wall near the header boxes with blue and red color.

5.7. Inside protection of Tube bundles

After carryout drying completely, all nozzles shall be blind and Nitrogen purging shall be done with at least 1.5 bar pressure. One pressure gauge and valve shall be installed on tube bundle. The periodically inspection shall be done every 4 months.

## 6. N2 FILLING PROCEDURE FOR Shell & Tube

- 6.1. Picking up a N2 cylinder from the ware house.
- 6.2. Put the cylinder near the inlet nozzle of shell & tube.
- 6.3. Connect the hose to inlet nozzle.
- 6.4. Connect the plug to the outlet nozzle.
- 6.5. Open the valve of the cylinder.
- 6.6. Watch the gauge until 1.5 brag pressure obtained.
- 6.7. Close the valve on cylinder.
- 6.8. Disconnect the hose from inlet nozzle.
- 6.9. Send back cylinder to the warehouse.

|  |   |         |  |
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6.10. All coolers which have been filled with Nitrogen shall have caution marked in as following: N2 FILLED.

6.11. During the nitrogen gas is purged to the coolers the air containment within the equipment will be evacuated through the drain nozzle.

6.12. If the purging pressure after final seal is maintained for 5 hr., the equipment are ready to be transported from the manufacturer's shop to the site

6.13. During storage of equipment at site, The Inert gas pressure shall be checked by Owner periodically and as required. If needed it shall be re-pressurized with the same inert gas, in accordance with this procedure.





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## N2 Filling Inspection Report

**ENBR**  
TEKNOLOJI



**dt** Damafin  
thermal technology

|                    |  |
|--------------------|--|
| <b>Report No :</b> |  |
|--------------------|--|

|                                    |  |
|------------------------------------|--|
| <b>Project Name / Dtt Job No :</b> |  |
|------------------------------------|--|

|                                      |                                |
|--------------------------------------|--------------------------------|
| <b>Reference Document Name / No:</b> | <b>N2 Purging Procedure</b>    |
|                                      | <b>EI027-DMF-VD-QC-PRO-029</b> |

|                  |  |                    |  |
|------------------|--|--------------------|--|
| <b>Item No :</b> |  | <b>Header No :</b> |  |
|------------------|--|--------------------|--|

| parameter                       | Acceptance criteria | NOT ACCEPT               | ACCEPT                   |
|---------------------------------|---------------------|--------------------------|--------------------------|
| <b>N2 purity percentage</b>     | 99% -5%             | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Pressure reading gauge 1</b> | 1.5 barg ± 0.2 barg | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Pressure reading gauge 2</b> | 1.5 barg ± 0.2 barg | <input type="checkbox"/> | <input type="checkbox"/> |

| Measuring instrument information | identification number | Certificate number | Calibration date |
|----------------------------------|-----------------------|--------------------|------------------|
| Pressure gauge 1                 |                       |                    |                  |
| Pressure gauge 2                 |                       |                    |                  |
| Oximeter tool                    |                       |                    |                  |

**DESCRIPTION:**

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Accept

Not Accept

|                  |                |                   |                      |               |
|------------------|----------------|-------------------|----------------------|---------------|
| Code: QF23 Rev.1 | <b>Damafin</b> | <b>Contractor</b> | <b>T.P Inspector</b> | <b>Client</b> |
|                  | Name :         | Name :            | Name :               | Name :        |
|                  | Date :         | Date :            | Date :               | Date :        |
|                  | Sign           | Sign              | Sign                 | Sign          |