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| **طرح نگهداشت و افزایش تولید 27 مخزن** | | | | | | | |
| **PICKLING AND PASSIVATION PROCEDURE**  **نگهداشت و افزایش تولید میدان نفتی بینک** | | | | | | | |
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| V00 | APR. 2025 | IFA | MFS | M.Fakharian | S.Faramarzpour |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
|  | | | | | | |
| **Status:** | **IFA: Issued For Approval**  **IFI: Issued For Information**  **AFC: Approved For Construction** | | | | | |

**REVISION RECORD SHEET**

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1. **Scope**

This procedures outlines necessary requirements for chemical pickling and passivation of welded stainless-steel surfaces.

|  |  |
| --- | --- |
| **Part** | **Tag No.** |
| SA-240 316L | C-200 / E-100 |
| SA-312 TP316L | C-200 / E-200 / E-100 |
| SA-403 WP 316L | E-100 |
| SA-182 F316L | C-200 / E-200 / E-100 |
| SA-213 TP316L | E-200 / E-100 |

1. **DEFINITIONS**

|  |  |
| --- | --- |
| **CLIENT:** | National Iranian South Oilfields Company (NISOC) |
| **PROJECT:** | Binak Oilfield Development – General Facilities |
| **EPD/EPC CONTRACTOR (GC):** | Petro Iran Development Company (PEDCO) |
| **EPC CONTRACTOR:** | Joint Venture of: Hirgan Energy – Design & Inspection(D&I) Companies |
| **VENDOR:** | MFS Co. |

1. **Reference Documents**

|  |  |
| --- | --- |
| Standard | |
| Standard Practice for Cleaning, Descaling, and Passivation of Stainless-Steel Parts, Equipment, and Systems | ASTM A380\_2017 |
| Standard Specification for Chemical Passivation Treatments for Stainless Steel Parts | ASTM A967\_2017 |

1. **USE OF LANGUAGE**

Throughout this specification, the words "will", "may", "should", "shall" when used have the following meanings:

• “Will” is used normally in conjunction with an action.

• “May” is used where alternatives are equally acceptable.

• “Should” is used where a solution is preferred.

• “Shall” is used where a provision is mandatory.

1. **Protection**

Personnel shall use anti acid equipment such as face protection helmet, gloves & etc. in order to prevent any harm effect of acid on human body.

1. **Cycle Stages**

Below stages shall be followed:

* Preliminary cleaning
* Degreasing
* Preliminary testing
* Rinsing with water
* Chemical pickling
* Rinsing with water
* Passivation
* Rinsing with water
* Drying
  1. **Preliminary cleaning**

The dust, chips and other coarse contaminants shall be removed by high pressure water, compressed air blowing or mechanical brushing.

* 1. **Degreasing**

Degreasing shall be carried out with liquid thinner or emulsions.

All surface shall be degreased with thinner cotton cloth, the emulsions shall be applied on surface with cotton cloths.

* 1. **Preliminary testing**

In order to make sure that the prepared chemical is not detrimental to the weld and base metals, first, it shall be tested on a test plate and weld line. If the results are satisfactory and it causes no damage, the prepared chemical can be used in large scale. However, if solution causes chemical damage, the records of results and newly proposed composition shall be issued to client for approval.

* 1. **Pickling & Passivation**

Chemical composition of acid shall be used as follow:

|  |  |  |  |
| --- | --- | --- | --- |
| **Process** | **Composition (Vol.%)** | **Temperature (˚C)** | **Time (min)** |
| Pickling | First phase:  Nitric acid 15 to 25%  Hydrofluoric acid 1 to 8% | 20-60 | As necessary |
| Passivation | Nitric acid 20-50% | 50-70 | 10-30 |

Solution prepared from reagents of following weight %: H2SO4, 98%; HNO3, 67%; HF, 70%.

Passivation shall be done as soon as the rinsing finished after pickling.

After passivation a careful washing shall be done with water in accordance with paragraph 4.1, in order to remove any acid solution from surface.

Finally, the surface will be dried with compressed air.

1. **Sample of test report**

Refer to attachment.

