

**Technical
Standard
ST S7 T5****Unloading of apparatus fillings using vacuum devices**

Prepared by :
Team for the
Transport of
Dangerous Goods

Consulted :
PBB, PPZ, PRZ, RT1, NEU,
RZR

Date of development:
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Version
1

Page
1 of 7

1. OBJECTIVE

- 1.1. Determining safety rules for unloading fillings or residues from apparatus using vacuum loaders.
- 1.2. Setting minimum requirements for vacuum loaders used to unload fillings or residues from industrial installations belonging to ORLEN Group companies.
- 1.3. Ensuring uniform safety rules for unloading apparatus fillings using vacuum loaders from industrial installations belonging to ORLEN Group companies.

2. APPLICATION

This technical standard specifies the requirements for ORLEN SA, the ORLEN Capital Group companies and their contractors.

3. DEFINITIONS

- 3.1. **Apparatus** – column, reactor, tank or other device from which the filling is planned to be discharged.
- 3.2. **Vacuum loader** - a vehicle on which a device (or a stand-alone device) is installed that generates negative pressure and is used to unload fillings from devices installed in an industrial installation, equipped with a tank and infrastructure ensuring collection, or collection and transport and unloading.
- 3.3. **Unloading** – all operations related to the unloading of apparatus fillings using vacuum loaders.
- 3.4. **Industrial installations** - production, distribution, storage facilities and other equipment used to produce petrochemicals and refined petroleum products in ORLEN Group companies.
- 3.5. **Filling** - filling of devices with solid substances, dust, used catalysts or adsorbers, which, due to the production processes, may contain explosive and/or flammable hazardous substances or substances susceptible to dusting.
- 3.6. **IBWR** – Instructions for the Safe Execution of Works.
- 3.7. **JSA** - (Job Safety Analysis) risk analysis for a given task.
- 3.8. **and maintenance manual** - technical and operational documentation provided by the manufacturer of machines and devices and should contain the necessary information enabling the safe use of the device. The scope of the technical and operational documentation must comply with the requirements specified in the directives applicable to a given device (machinery directive, pressure directive, ATEX and others, if applicable).

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Page
2 of 7

- 3.9. **IBRP** - Instruction for the Safe Carrying out of Work - an instruction developed for carrying out, for more than one day, the same particularly hazardous works and other works, containing the same substantive scope as single-use permits and fulfilling the same role as permits.
- 3.10. **One-time permit** – Work permit issued for the period of one shift, appropriate to the work system used during the work. If the safety conditions do not change and the work is performed and supervised by the same persons listed in the issued permit, the permit may be extended. In such a case, the Supervisor has the right to extend the permit for a period not longer than 4 hours. The total validity period of the permit may not exceed 12 hours.
- 3.11. **Supervision inspector** - an employee of ORLEN SA (mentioned in the Agreement) responsible for supervising the works carried out by the Contractor under the concluded agreement and the provided scope.

4. RANGE

This technical standard covers:

- 4.1. Safety rules for the implementation of filling unloading processes using vacuum loaders.
- 4.2. Minimum requirements for vacuum loaders used in filling unloading processes in production plants.

5. EXCLUSIONS

- 5.1. The standard does not cover the requirements for slurry tankers used in the processes of collecting, transporting and pouring hydrocarbon sludge and domestic sewage.
- 5.2. The provisions of the standard do not apply to work performed by vacuum loaders in an oxygen-free atmosphere, but should serve as guidelines for organizing this work.

6. RESPONSIBILITY

- 6.1. The Company's Management Board is responsible for approving the standard for use.
- 6.2. The management staff is responsible for implementing the standard.
- 6.3. The ORLEN SA Purchasing Area is responsible for transferring the standard to Contractors at the stage of the purchasing procedure.

21



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Update date : 20/11/2023

Version
1

Page
3 of 7

7. REQUIREMENTS

7.1. Safety rules for carrying out filling unloading processes using vacuum loaders.

- 7.1.1. Before starting work related to the use of vacuum loaders, the Contractor must read the document describing and confirming the physical and chemical properties of a given filling.
- 7.1.2. In the absence of a document describing and confirming the properties of a given filling, in connection with the properties of the processes taking place inside the devices, it should be accepted as a rule that each filling may have dangerous properties (explosive, flammable).
- 7.1.3. For unloading work, the gravity method should be used as the first choice.
- 7.1.4. Work using the vacuum method may only be performed in cases where gravity unloading is not possible, while maintaining the requirements of the technical standard.
- 7.1.5. When unloading fillings from appliances using vacuum loaders, people should be avoided as much as possible from entering the appliance.
- 7.1.6. First of all, the possibility of using an automated system for controlling the filling unloading process should be analyzed.
- 7.1.7. If it is not possible to use automated filling unloading systems, people may enter the device only in accordance with separate internal organizational acts or those in force at ORLEN SA
- 7.1.8. Before starting work on a given installation, the Contractor agrees with the Supervision Inspector on the location of the installation within the location of the vacuum loader to which he wants to connect the grounding of the above-mentioned equipment.
- 7.1.9. Before commencing work, the Supervision Inspector is obliged to check the effectiveness of electrical discharge in the place indicated to the Contractor as grounding. For the Production Plant in Plock, at the request of the Supervision Inspector, the Area Electrician commissions this activity to ORLEN Serwis SA, which is obliged to confirm the inspection with a report.
- 7.1.10. Before starting work using the vacuum method, the representative of the installation from which the fillings are to be unloaded should analyze with the Contractor the possibility of spraying the filling with water (if possible for technological reasons) in order to prevent it from drying out and thus reduce the risk of dusting.
- 7.1.11. The contractor is responsible for the proper preparation of the filling or residue removal system he operates, in accordance with the specifications of the planned task. In particular, this applies to the use of dedicated flexible hoses connecting the device with the filling removal device.

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Version
1

Page
4 of 7

7.1.12. Before unloading work begins, the apparatus must be properly prepared by cutting off / plugging all equipment in accordance with the requirements described in the dedicated organizational act.

7.2. The process of unloading fillings using vacuum loaders should be carried out taking into account the following conditions:

- 7.2.1. **The person ordering a request** for vacuum unloading in a given installation is obliged to provide the ORLEN SA Purchasing Area with a document describing the properties of a given filling along with the request. If you have a safety data sheet or an ADR classification certificate, you should also attach these documents. In the absence of documents confirming the properties of the material to be unloaded, the request for work must include information that the filling may have the properties of a hazardous material (in terms of explosiveness and/or flammability) due to the conditions and processes in which it was used.
- 7.2.2. At the stage of acquiring a contractor, **the ORLEN SA Purchasing Area** is obliged to provide potential contractors with a description of a given filling along with a description of the conditions in which it was worked. In the absence of documents confirming the properties of the material to be unloaded, the request for quotation for the work must include information that the filling may be a hazardous material (in terms of explosiveness and/or flammability) due to the conditions and processes in which it was used.
- 7.2.3. Before commencing work, the Contractor, based on the risk analysis of the JSA task, is obliged to develop an IBWR approved by the Occupational Health and Safety Service of a given Contractor.
- 7.2.4. Before commencing the work, the Contractor is obliged to familiarize all persons participating in the works with the provisions of the IBWR.
- 7.2.5. Unloading is carried out only on the basis of a "one-time permit to perform particularly hazardous work" or IBRP.
- 7.2.6. Before starting the work, the effectiveness of discharging electric charges from the place to which the Contractor wants to connect should be measured once (in accordance with the provisions of points 7.1.8 and 7.1.9). The measurement result (grounding effectiveness test protocol with a description of the measurement site - grounding connection) should be attach to subsequent permits or IBRPs.

ATTENTION! If the place of earthing connection is changed, efficiency measurements must be performed again and a new report issued.

- 7.2.7. System components intended for unloading fills (i.e. hoses, pipes, elbows, fittings, etc.) must:

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Page
5 of 7

- a. be made only of components enabling an effective method of dissipating static electricity charges and do not contain elements that do not meet the above requirements,
 - b. be in good technical condition,
 - c. have documentation confirming regular technical inspections in accordance with the Operation and Maintenance Manual.
- 7.2.8. Every day before starting work, the contractor is obliged to check the technical condition of the elements of the transport system. This activity must be formally recorded by the contractor's designated employee and confirmed with a legible signature. For the purpose of carrying out this activity, the contractor must have a register in which he will record the daily checking activities carried out.
- 7.2.9. The contractor must secure the work area against access by persons not directly involved in the unloading.

7.3. Minimum requirements for vacuum loaders used in filling unloading processes in production plants.

- 7.3.1. The contractor of the works is obliged to ensure that the vacuum loader used for unloading and possible transport of fillings meets the following requirements:
- had the necessary technical and periodic inspections and the necessary approvals to perform a given work,
 - was adapted to unload hazardous materials and dust,
 - had an earth continuity indicator during the operation of the unloading set by using a dedicated device that is part of the unloading set,
 - if it is necessary to transport hazardous materials, it had an ADR vehicle approval certificate (vehicle approval for the transport of dangerous goods according to the classification in accordance with the ADR Agreement),
 - the means of transport must be selected correctly so that the tank code is consistent with the ADR Agreement, corresponds to the material being transported, and the vehicle itself has ADR documentation confirming the possibility of transporting a given dangerous goods,
 - in the case of transport of hazardous materials, it was marked in accordance with the ADR Agreement,
 - in the case of transporting hazardous materials, the driver must have a license to transport hazardous materials,
 - It is prohibited for the Contractor to use vacuum loaders on which any modifications have been made without the consent of the device manufacturer. Each change must be confirmed by the appropriate manufacturer's protocol and by the appropriate certification or supervision body in accordance with legal requirements.

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Update date : 20/11/2023

Version
1

Page
6 of 7

7.4. Minimum requirements for operators of vacuum loaders used in unloading processes in production plants.

7.4.1. The contractor of the works is obliged to ensure that persons operating vacuum loaders to unload the apparatus fillings:

- have appropriate training and authorization to operate a given charger or vacuum device,
- were familiar with the operating instructions and operating instructions of a given vacuum loader,
- were familiar with the IBWR for a given task,
- had appropriate personal protective equipment for the work performed.

7.5. Checklist

7.5.1. When the check of technical condition of the elements of the transport system is finished and the workplace prepared for work, the Contractor, before starting the actual unloading, shall complete a checklist confirming compliance with the regulations required by this standard, which constitutes Annex No. 1 to this standard.

7.5.2. The completed and signed checklist confirms the safe preparation of the workplace. The list must be kept at the place of work at all times and be available for presentation at the request of the Client.

8. RELATED DOCUMENTS

- Standard S 7: Adaptation of machines, tools and devices for safe operation in work environments,
- OPERATIONAL ORDER regarding Work inside tanks, closed apparatus and sewage manholes at ORLEN SA,
- OPERATIONAL ORDER regarding the implementation of works based on written permits at the production plant in Płock, the PTA Plant in Włocławek, the CCGT Plant in Włocławek and fuel terminals located outside Płock,
- OPERATIONAL ORDER regarding the Transport of dangerous goods by land transport in ORLEN SA,
- Guidelines No. 2 to the Regulations - General Requirements for Occupational Health and Safety at ORLEN SA

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Version
1

Page
7 of 7

9. RECOMMENDATIONS

In order to unload fillings from devices, unloading using the gravity method is recommended.

10. STANDARD UPDATE

The person in charge of the Transport of Dangerous Goods Team is responsible for updating this Standard in the event of circumstances justifying it.

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**Appendix No. 1
CHECKLIST**

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---	---	--	---------------------	-----------------------

No	ST S7 T5 standard requirement	YES	NO	Comment
1	We have familiarized ourselves (all staff) with the document describing the physico-chemical properties of a given filling and conditions under which it was used.			If "NO", PERFORMING WORK IS PROHIBITED
2	Is the vacuum loader that will be used adapted to the working conditions and can it be used to safely unload the product that is the subject of the order (e.g. hazardous materials and dust)?			If "NO", PERFORMING WORK IS PROHIBITED
3	Has the place where the vacuum device grounding should be connected been agreed with the Supervision Inspector of ORLEN SA?			If "NO", PERFORMING WORK IS PROHIBITED
4	Has the effectiveness of the grounding to which the vacuum device is to be connected been checked? Has a protocol been prepared?			If "NO", PERFORMING WORK IS PROHIBITED
5	Has a JSA been prepared and are all our employees familiarized with it (in a demonstrable way)?			If "NO", PERFORMING WORK IS PROHIBITED
6	Has the Instruction for the Safe Execution of Works (IBWR) been developed and are all our employees familiar with it (in a demonstrable way)?			If "NO", PERFORMING WORK IS PROHIBITED
7	Are the elements of the transport system (hoses, pipes, elbows, connectors, etc.) made of elements that dissipate static electricity?			If "NO", PERFORMING WORK IS PROHIBITED
8	Has it been done the prescribed daily check concerning the technical conditions of the elements of the transport system (e.g. hoses, pipes, elbows, connectors) and everything is OK?			If "NO", PERFORMING WORK IS PROHIBITED
9	Does the vacuum loader have the necessary inspections confirmed by appropriate documentation?			If "NO", PERFORMING WORK IS PROHIBITED
10	Does the vacuum loader have a ground continuity indicator and is the system verifying its status operational?			If "NO", PERFORMING WORK IS PROHIBITED
11	Does the staff operating the vacuum loader have the appropriate training and authorization to operate the loader?			If "NO", PERFORMING WORK IS PROHIBITED
12	Have the personnel operating the vacuum loader been familiarized with the loader's operating instructions?			If "NO", PERFORMING WORK IS PROHIBITED

Date and signature of the person completing the checklist: