



S1 93 81 03 Tata Steel Standard

Regulations for ground work near oxygen
equipment and piping

Author : A.C. Grooten

Issue : March 2013

Version : 2.0

Intended for the Location IJmuiden

If this document is changed in the future, the amendments will not be sent to you.
The latest version can be retrieved via Intranet van Tata Steel (ProjectNet) of internet.
<https://www.tatasteeleurope.com/ts/nl/gezondheid-en-veiligheid/toegang-en-veiligheid-ijmuiden/voorschriften>

Information and changes:

Document design	SPME-PTC-MCE-HPM	tel. +31 (0)251-4 95766
Standardisation	ptc-adm@tatasteel.com	tel. +31 (0)251-4 94443

Contents:

- 1. INTRODUCTION3
- 2. SCOPE.....4
- 3. SAFETY5
- 4. ACTIVITIES CAUSING VIBRATIONS6
- 5. REQUIREMENTS WITH RESPECT TO SAID ACTIVITIES7
- 6. REFERENCES8
- 7. DECLARATION9

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 1 of 9

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 2 of 9

1. INTRODUCTION

Due to the specific properties of oxygen and related special risks, this Tata Steel Standard has been drafted for ground and foundation work in the vicinity of oxygen systems and pressurized oxygen overhead and underground pipelines.

Particular care is required when carrying out work whereby there is risk of:

- Damage to piping
- Hot points, for example through contact with an electrode holder.
- Oxygen Leakage
- Reduced load bearing capacity due to (partial) excavations
- Exposure of oxygen piping to vibrations, for example through ground work.

All Tata Steel Standards and Technical Directives mentioned in this standard are mandatory.

In cases where this Tata Steel Standard does not provide, the Oxygen Commission must be consulted. Also see Tata Steel Regulation QHSE 1:06: "Installations for transport and consumption of oxygen."

Tata Steel IJmuiden Projects & Technical Consultancy Standard	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013 Page 3 of 9
--	---

2. SCOPE

This standard applies to executing ground and foundation work in the vicinity of operational:

- Oxygen Installations
- Oxygen Control stations and distribution stations
- Storage of gaseous oxygen
- Buildings and piping supports associated with the installations above
- Overhead pressurized oxygen pipelines
- Underground pressurized oxygen pipelines

For the concept of "proximity" can be held:

Excavations	:	Distance less than 5 meters
Cranes/earthmoving machinery /vacuum trucks	:	Distance less than 5 meters
Pile driving (drilling) and vibrating	:	Distance less than 10 meters

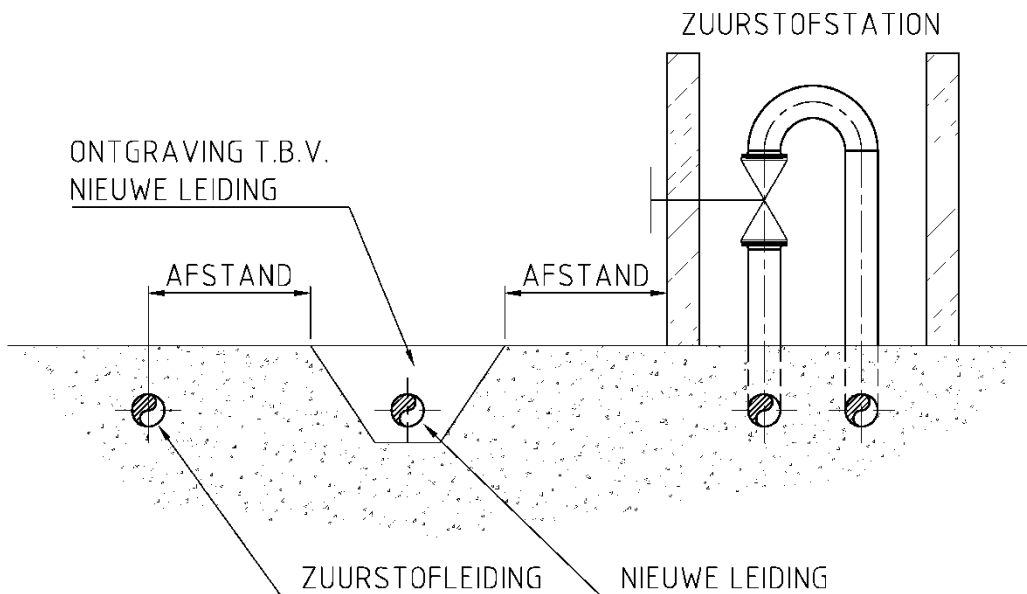


Figure 1: Example of a safe distance from excavation to oxygen system.

Explanation of the Dutch in figure 1:

Zuurstofstation	:	Oxygen Station
Ontgraving T.B.V nieuwe leiding	:	Excavation for the benefit of the new pipeline
Afstand	:	Distance
Zuurstofleiding	:	Oxygen pipeline
Nieuwe leiding	:	New pipeline (The highlighted remarks are Optional)

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 4 of 9

3. SAFETY

Because of the large potential hazards of the activities mentioned above, a “**High level permit to work**” must always be applied.

To properly assess the hazards during the work a risk assessment should always be carried out.

Given the dangers of oxygen in the presence of combustible materials and ignition sources, staff must strictly adhere to the following safety regulations.

- During work, grease and oil may not come into contact with nearby oxygen installations.
- The presence of combustible materials, such as paper, wood, cotton wool etc., should be kept to a minimum.
- If during the work it can not be avoided that the nearby oxygen installation is touched, then clothing, footwear and hands must be free of grease and oil.
- Apparel, which has been in contact with oxygen, must be aired immediately. Keep this clothing away from fire so for example, do not light a cigarette.
- Smoking and open flames are strictly prohibited in the vicinity of oxygen equipment.
- Operational work with sparking tools, due to the increased risk of fire is strictly prohibited in areas exposed to elevated concentrations of oxygen.
- Welding transformers or other electrical tools may never be grounded through components of oxygen systems.
- By digging work the possibility of deviations in relation to the land registry drawings of valve configuration, location etc must be taken into account; digging work should be carefully performed at all times.
- By excavation work it is possible that the location of pipe work (or the location of old "forgotten" underground valves) deviates from land registry drawings, therefore digging work should always be carefully performed.

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 5 of 9

4. ACTIVITIES CAUSING VIBRATIONS

For oxygen pipelines there is the risk of particles shedding inside the piping which consequently could form an ignition source for a pipeline fire.

For activities which may involve the occurrence of (ground) vibrations, for example, pile driving or active earthmoving equipment, additional rules will apply.

For each case it should be considered whether during these activities an installation, equipment and/or pipeline must be taken out of operation. This will be determined by the manager responsible for the oxygen installation.

The manager of the oxygen installation may prescribe that after completion of the groundwork in accordance with applicable regulations the oxygen installation will be purged with nitrogen. This will remove possibly loosened dirt.

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 6 of 9

5. REQUIREMENTS WITH RESPECT TO SAID ACTIVITIES

Before commencement of activities the following items must be minimally arranged:

- A risk assessment of activities
- The performing party must arrange a ground work instruction.
also see Tata Steel regulation QHSE 3:06: "Ground work Instruction".
- The performing party must arrange a "high level permit to work".
also see Tata Steel regulation QHSE 3:08: "Permit to work".
- For other requirements, see Tata Steel Directive R3280101: "Laying underground piping and cables"

Tata Steel IJmuiden Projects & Technical Consultancy Standard	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013 Page 7 of 9
--	---

6. REFERENCES

This Tata Steel Standard refers to:

Tata Steel Technical Directives:

- R3 28 01 01 Laying underground piping and cables

Tata Steel Regulation QHSE 1.06: “Installations for transport and consumption of oxygen”

Tata Steel Regulation QHSE 3.06: “Ground work instruction”

Tata Steel Regulation QHSE 3.08: “Permit to work”

For the latest version of the Quality, Health, Safety and Environment Regulations see:

<http://www.tatasteel.nl/veiligheid>

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 8 of 9

7. DECLARATION

Version 1.0:

This Corus Standard replaces S1 93 81 03 issue November 1980.

Version 1.1:

Logo change

Version 1.2:

Title of NEN 3650 changed.

Version 2.0:

Version completely revised

Tata Steel IJmuiden Projects & Technical Consultancy	S1 93 81 03 Regulations for ground work near oxygen equipment and piping version 2.0 / March 2013
Standard	Page 9 of 9