

**Document
title:****Safety regulations for contractors****Introduction**

KRONOS EUROPE pursues a policy in which the environmental protection, as well as the safety and health of its own employees, the contractor's employees and the people living in the neighbourhood, are essential.

To avoid incidents it is necessary that all persons present on our factory site comply with the statutory regulations. The safety regulations for contractors are included in this document. If you should have any more questions, please contact your KRONOS-representative.

1. General

1. All legal regulations, with regard to safety and environment, are to be observed.
2. The contractor's employees are in the obligation to observe the safety regulations valid at KRONOS EUROPE S.A./N.V.
3. The contractor must train the employees he hires to work at KRONOS EUROPE S.A./N.V. so they can do their tasks safely and in accordance with the statutory safety regulations.
4. Access to the KRONOS EUROPE S.A./N.V. plant will be denied to those employees who don't observe the safety regulations.
5. Contractor's employees themselves report at the reception desk when arriving or leaving the plant. It is strictly forbidden to station/park vehicles on the shaded parts all over the factory site.
6. Daily, before the start and at the end of the work, the contractor's representative checks in and out to the KRONOS-representative. The KRONOS-representative gives the necessary instructions and relevant information concerning the tasks that have to be done and the risks involved.
7. The number of vehicles admitted to the plant and the use of vehicles inside the plant area is restricted to a minimum. The vehicles that are admitted need to park (with the exception of loading and unloading) within the indicated parking zones at all times.
8. People less than 18 years old and animals are not allowed entry to the plant.
9. Contractor's employees are allowed to execute only those tasks given by the KRONOS-representative.
10. Contractor's employees are not allowed to operate production equipment.
11. Use of cameras is forbidden. If necessary for professional reasons, permission of a KRONOS department head has to be granted.

2. General safety regulations

1. Smoking is strictly forbidden all over the plant, as well as at the plant installations, as on the roads (except at designated smoke shacks).
2. The wearing of a long pair of trousers is compulsory.
3. T-shirts without sleeves are forbidden. T-shirts should at least have short sleeves.
When loading/unloading dangerous products or executing tasks at machines that contain dangerous products, long sleeves are mandatory.
4. Within the production buildings safety shoes are mandatory (also see 5. 'Personal protective equipment'). Elsewhere at the plant area, closed shoes are mandatory.
5. Alcoholic drinks are not allowed in the plant. Persons being obviously drunk have no access to the plant. A breath test can be imposed.
6. The maximum speed of vehicles within the plant amounts to 20 km/hr. Violations can lead to exile.
7. Water for fire fighting can only be used for other purposes if a special allowance is given by the KRONOS-representative.
8. Requirement for a safe work permit include among other things the following activities:
 - works in tanks, tubs, pits and confined spaces
 - works in areas where fire, burning and/or danger for explosion can occur
 - works at which pipes or equipment containing dangerous liquids need to be opened
 - works with a crane in the vicinity of pipes containing liquid Cl₂, liquid TiCl₄ or liquid NH₃
 - hoisting works
 - digging works
 - works in the vicinity of radio-active sources
 - works at high levels (> 2 meter)
 - works in the vicinity XXX of underground XXX gas pipes (natural gas of FLUXYS & hydrogen of AIR LIQUIDE)
 - works in the vicinity of high-voltage cables
 - works at aerosol producing installations (e.g. cooling towers)
 - other works requiring certain precautions and for which there are no work instructions available.

Without the safe work permit, such activities cannot be started. The safe work permit is provided by the KRONOS-representative. All people involved must examine the instructions in the safe work permit and sign it.

In case of emergency, all safe work permits expire.

The safe work permit is described in procedure OP/4.09-03.
9. Driven machinery always needs to be locked off before starting reparation works. The switch-off must be carried out in accordance with the KRONOS-representative.
10. Activities at a height of more than 2 m need to be carried out according to the regulations of ARAB (= General Regulations on Work Protection).
The most important stipulations are :
 - Working-platforms and gang-platforms of 2 m and more, have to be equipped with handrails or equivalent means of protection.
 - Floors, nets or equivalent collective protective elements are necessary where adequate hand-rails cannot be placed.
 - Safety belts or equivalent protections are necessary when no other adequate collective protective equipment can be applied.
11. Only adequate personnel can carry out works at electrical installations.

12. Circumstances involving dangerous situations have to be reported to the KRONOS-representative immediately.
13. The instructions indicated by pictograms or traffic signs are to be observed at all times.
14. Overhead cranes, cherry pickers or fork lifts can only be used with permission of the KRONOS-representative. Contractors have to prove the KRONOS-representative they received the necessary training and are competent to use these means of equipment.
15. The contractor has to verify whether a (temporary) environmental permit is needed for carrying out the works and has to report this to the KRONOS-representative.

3. Equipment and materials

All equipment and material in use need to be in good state and be of no risk whatsoever for persons or installations. All material needs at least to fulfil the legal requirements. The use of unsafe material is forbidden.

Machinery in the work area may only be operated by :

- maintenance personnel of Kronos Europe
- contractor's employees mentioned on the list "competent contractor's employees allowed to use the machinery in the central workshop" (D10)

4. Orderliness and tidiness

1. At each moment during work the traffic signs, the stairs, the intercoms, the emergency exits, the emergency showers, the eye-rinsing showers, the eye-rinsing bottles, the first aid-boxes, the fire protection equipment, the self-contained breathing apparatus, the emergency stops, the electrical - and operational boxes and the passage ways need to be free and unobstructed.
2. Used or disassembled equipment, wastes, etc. have to be stored in such way that no one in the neighbourhood can be hampered or hurt by it.
3. The working area needs to be protected (screened off) as much as possible.
4. After finishing, the (daily) work, all equipment has to be put safely away and 'locked up'.
5. Wastes must be regularly evacuated in accordance with the KRONOS-representative.
6. At the end of the activities, the whole working area has to be completely restored again.
7. KRONOS EUROPE S.A./N.V. has the right to have the working area cleaned up at the contractor's charge, in case the latest might fail.
8. The contractor will comply with the statutory (legal) storage demands for dangerous products (transport, troughs, labeling, MSDS, fire safety).

5. Personal protective equipment

Following personal protective equipment has to be worn at any time :

- **Safety shoes** : in all production buildings.
- **Safety spectacles** : all over the plant area and in all production buildings.
- **Safety helmet** : all over the plant area and in all production buildings.
- During works at which :
 - the statutory tolerated sound level is exceeded, adequate ear protection must be worn

(e.g. during grinding).

- there is an increased risk at eye injuries, "splash" spectacles or goggles have to be worn (e.g. during grinding).

The contractor himself is responsible for putting the safety shoes, safety spectacles, safety helmet and ear protection at the disposal of his personnel.

The respiratory protection is provided by KRONOS. The user of this respiratory protection has to be trained for this material.

For specific tasks, KRONOS can require the wearing of other personal protective equipment. Which specific respiratory protection has to be worn by exposure to dangerous products is described in the general safety instruction VI/6.-603.

6. Medical assistance in case of accidents

In case of an accident (incident, first aid, ...) the KRONOS-representative always needs to be contacted immediately.

The KRONOS-first aid assistants :

- will take care of small injuries.
- will send more serious injuries to the hospital.
- will take care of the transportation (ambulance or Life Care).

7. Plan for emergency situations

In case of emergency, the contractor's employees must follow the KRONOS-emergency plan. The most important stipulations are:

- emergency situations (such as fire, gas leak, ...) must be immediately reported to the CP control room :
 - via the emergency telephone number 777 (from the inside)
 - via telephone number 09/254.04.62 (e.g. from a cell phone)
 - via intercom.
- no use of elevators in case of danger.
- during emergency situations all traffic has to be stopped (keep the passage ways free).
- emergency situations are announced by means of sirens and intercom. By means of the intercom accessory information will be announced.

Alarm signals:

Alarm: continuous siren



Large sirens



Small sirens

XXX

Alarm test (siren and water curtain)

Each first Thursday of the month at 12.00 hrs.

Instructions in case of alarm (continuous siren)

When hearing the siren, abandon your work area via a safe route. Leave it behind in a safe manner. Report to your KRONOS-representative at his usual workplace. If you are not able to

get to your KRONOS-representative in a safe way, report by telephone and tell him where you are.

If you are not able to report physically or by telephone to your KRONOS-representative, you have to report, from where you are at that moment, to the CP control room as soon as possible :

- via the emergency telephone number 777 (from the inside)
- via telephone number 09/254.04.62 (e.g. from a cell phone)
- via intercom.

Instruction in case of evacuation (increasing and decreasing siren)

Go, together with your KRONOS-representative, to the meeting place and follow his instructions.

Guidelines in case of gas escape

- gas escape on the outside of a building :
Stay inside and try to keep the gas cloud on the outside. Close all doors and windows. The safest place in a building is always there where the wind can't reach and as high as possible. Evacuation will be rarely necessary.
- gas escape on the inside of a building :
Leave the building as soon as possible.

Always try not to end up in the gas cloud. If you find yourself in a gas cloud, flee in the opposite direction of the wind.

Evacuation

In case an area has to be evacuated due to a dangerous situation or to the execution of a dangerous work, e.g. when an escape of chemicals is probable, the following procedure will be pursued :

- there will be announced by intercom that the danger zone will be evacuated;
- Contractor's employees will :
 - abandon their work area in a safe way
 - report to their KRONOS-representative
- the siren (increasing and decreasing signal) will be started in case of immediate danger.

Evacuation : increasing and decreasing signal



- The contractor's employees will :
 - abandon their work area and leave it behind in a safe manner;
 - report to the Kronos-representative.

8. Detections: carbon monoxide (CO), hydrochloric acid (HCl), ammonia (NH₃) and chlorine (Cl₂)

- The entrances of the production buildings (B3-B8) are equipped with signalisation lights (red/green).
 - The building can only be entered when the green light is ON.

- When the RED light is ON, the building can not be entered and you need to inform your supervisor.
- When neither the green nor the red light is on, you may not use this entrance and you need to make use of another entrance with signalisation.
- The exits of the production buildings (B3-B8) are equipped with flash lights. These are activated when chemicals are detected.
 - When the flash lights are active, you need to leave the building via a safe route.

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9. Exploration of the workspace

Before starting the works, the workspace always needs to be explored.

The following things have to be examined :

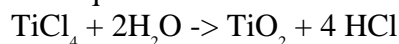
- location of the emergency showers, the eye-rinsing showers and the testing of these.
- location of fire extinguishers and check how they have to be used.
- location of intercom
- all possible escape routes (at least 2 in different directions).

10. Most important dangerous products and their properties

During works at installations containing dangerous products, the KRONOS-representative will provide all necessary information concerning the products involved. The most important products are listed hereafter :

1. Titanium Tetrachloride (TiCl₄)

Titanium Tetrachloride is the intermediary product of the production process. It is present in a large part of the installations, mainly as a liquid. When airborne, it will react with the atmospheric humidity that is present, following the formula mentioned below, with as a consequence the formation of a compact white irritating mist.



The allowed concentration of HCl is 5 ppm. This limit is reached as soon a visible mist is formed. Above this limit, respiratory protection is necessary.

2. Chlorine (Cl₂)

Chlorine is a yellow-green poisonous gas. The allowed concentration is 0.5 ppm. The smell value lies beneath this limit. Above this limit, respiratory protection is necessary.

3. Ammonia (NH₃)

Ammonia has an allowed concentration limit of 25 ppm. Above this limit, respiratory protection is necessary.

4. Carbon monoxide (CO)

Carbon monoxide has an allowed concentration limit of 25 ppm. Above this limit, respiratory protection (compressed-air mask) is necessary.

11. Environmental regulations

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