

SAFETY REQUIREMENT VV18. Exposure to heavy metals	 Balen/Pelt
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Exposure to heavy metals



Balen/Pelt

1 PURPOSE

Given the potential exposure to heavy metals (lead and cadmium), sulphuric fog and static magnetic fields within Nyrstar Belgium, we insist that these exposures are medically monitored. We trust that the contractor's own prevention service will also inform its people in good time about these risks and its prevention measures.

2 SCOPE

This regulation applies to all employees of Nyrstar, of the contractors and its subcontractors if:

1. Work must be carried out at the following departments in Balen & Pelt:

- Roastery
- Leaching & PWZI
- Hydro
- Zinc halls (anodes treatment)
- CGG/Zincdust
- Concentrate shed
- All Maintenance services incl. garage
- All other places where exposure to Lead or Cadmium is not excluded.

and:

2. The employee(s) is(are) present or may be present within one of the aforementioned departments for more than **20 working days**.

The rule shall not apply if the work involves only administrative activities.

3 PRESCRIPTION

3.1 Testing standards for lead in blood and cadmium in urine

Nyrstar applies the following standards of review/action:

Measured value of lead in blood:	Action
< 10 µg/dl	Annual monitoring lead in blood value
> 10 and < 15 µg/dl	1. Monitoring frequency bi-annual + Hygiene Action Plan for Lead (HAP), if > average group

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> 15 µg/dl Action Level	1. Consultation at medical service + HAP Monitoring frequency <u>6 weekly</u> 2. Contractor: no access to site
> 25 µg/dl Transfer level	Removal from exposure *
Measured value cadmium in urine:	Action
< 2 µg/g creatinine	<u>Annual</u> monitoring cadmium urine value
> 2 and < 5 µg/g creatinine Action Level	1. Monitoring frequency <u>6-monthly</u> + Hygiene Action Plan for Cadmium (HAP) 2. Contractor: no access to site
> 5 µg/g creatinine Transfer Level	1. After confirmation of this value: definitive** no more admission to risk zone. 2. Consultation with medical service Monitoring frequency annually for follow-up 3. Contractor: no access to site

*A measured value > 25 µg/dl may mean that the Nyrstar employee is (temporarily) unable to continue his work within Nyrstar Belgium. He may return to the environment where there may be exposure to lead if his lead has decreased in blood value below 15µg/dl.

** Given the very long biological half-life of cadmium in urine (>20 years), it is unlikely that a reduction below the action threshold of 2 µg/g creatinine can be obtained.

3.2 Execution of the measurements

3.2.1 Assessing external exposure (what am I exposed to?)

Workplace measurements are periodically carried out in the company to assess the external exposure of the workers. These are carried out strictly according to the correct and latest standard (EN 689). The results are tested with the current limit values (determined in accordance with the Royal Decree) and communicated to the departments. The employees but also the contractors always have the opportunity to check with the IHS.

3.2.2 Assessing internal exposure (how much has my body absorbed?)

For non-ferrous metals, one can perfectly determine how much has entered our body. The method is called biomonitoring. We will measure the concentration of certain metals in blood and/or urine. These results are compared with reference values (except for lead in blood; for this there is a fixed limit value in Belgium).

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The frequency of sampling depends on the measured value and this is described for the different metals in the Nyrstar Biomonitoring standard. In general, the Nyrstar reference values are stricter than the proposed reference values as described in the literature and we apply the principle of Action Values.

Contractors who are employed by us for more than 20 days (4 weeks) must also be followed up with biomonitoring. This is normally done by their external medical service. For clarification, they can always call on our standard Biomonitoring and/or contact the occupational physician of Nyrstar Balen/Pelt. The contact details can be found below.

The minimum frequency for biomonitoring is 1x per year for both own employees and contractors (who work at our company for a longer period of time)

3.3 Information employees

Personal hygiene and the follow-up of PPE requirements play an important role in avoiding exposure to lead and cadmium.

During the recruitment of employees, the occupational physician makes clear which exposures the person concerned may have, and the occupational hygiene measures are discussed in detail. The summary of these measures can be found in a leaflet that is then given to the employee.

If an employee has a biomonitoring value in the blood or urine that is higher than the 'action level' (or the 'transfer level'), a 'HAP (Hygiene Action Plan)' is started together with this employee. The manager of the department concerned is also involved in this. The aim is to find an explanation of this increased value. From then on, this employee will be monitored more frequently to evaluate the further evolution.

The results of the biomonitoring are also always explained by the occupational physician during the annual periodic examination.

The contractor is obliged to inform his employees of the need for hygiene and PPE. In addition, he shall inform his workers of the dangers arising from exposure to lead and cadmium. Educational materials may be provided by Nyrstar's Internal Occupational Health Service upon request.

3.4 Nyrstar Internal Occupational Health Service Contact Information

Occupational physician: Dr De Groof, 014 81 9475 📞

Nurse: Paul Mentens, 014 81 9270 📞