

<p>SAFETY REGULATION VV01</p> <p>The provision and use of Personal Protective Equipment</p>	 Balen/Pelt
<p>DATE OF FIRST EDITION:</p>	<p>November 19, 2013</p>

<p>Date last modified:</p>	<p>11/09/2025</p>
<p>Nature of last change: see blue text</p>	

1	PURPOSE	2
2	SCOPE	2
3	DEFINITIONS	2
4	REGULATION	2
4.1	Standard PPE	2
4.1.1	Exceptions.....	3
4.2	Department specific PPE	4
4.3	General requirements for additional PPE	4
4.3.1	Face protection.....	4
4.3.2	Respiratory protection.....	5
4.3.3	Hearing protection.....	5
4.3.4	Foot protection.....	5
4.3.5	Possible contact with acid or leach	5
4.3.6	Possible contact with hot mass or liquid metal	5
4.4	Requirements to be observed when using PPE	5
4.5	6	
4.6	Provision of PPE	6
5	ANNEX 1: GUIDANCE ON THE CHOICE OF RESPIRATORY PROTECTION	7
6	ANNEX 2: PROCEDURE FOR THE CHOICE OF PPE	12

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**



1 PURPOSE

This Safety Regulation describes the requirements for Personal Protective Equipment (PPE) when working on the Nyrstar Belgium sites.

The requirements are subject to a layering:

- the basis is formed by the Standard PPE;
- in addition, department specific PPE is prescribed. These are listed per department;
- additional requirements may follow from risk analyses. This regulation contains a number of principles that must be followed.

2 SCOPE

The requirements of this safety regulation apply to the premises of Nyrstar Belgium.

3 DEFINITIONS

A personal protective equipment (PPE) is any equipment that, subject to regulatory exceptions, is intended to be worn or held by the worker in order to protect him from one or more risks that may threaten his safety or health at work, as well as any additions or accessories that may contribute to this.

4 REGULATION

4.1 Standard PPE

Within the zones of the production¹ facilities, at least the standard PPE must always be worn. These include:

- Close fitting Safety glasses
- Safety helmet (according to EN397)
- Safety footwear minimum type **S3**
- Closed clothing with long sleeves and long pants with increased visibility through striking colors and reflective bands.
- Gloves (type depending on the TI, TRA, specific requirements in the work permit or environment)

¹ The 'zone of production facilities' means from the time you are on the site, carry out work, come in production departments and workshops and come into an environment where there are dangers. When in doubt whether one is within the zone, one should assume that one is within the zone.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**



- Closed work suit consisting of a long-sleeved vest and long trousers or overalls. Work suit must meet at least the following standards:

- EN ISO 11612 (A1,A2, B1, C1, E3, F1):2015 (Flame retardant)
- EN 1149-5: 2018 (Antistatic)
- EN 17353:2020 Type B3 (reflective)
- EN 13034:2005 Type 6 (acid-resistant)



When carrying out work, the safety footwear must be of at least a half-height type.

Exceptions to the standard PPE when carrying out work must be approved by the client and prevention service.

4.1.1 Exceptions

The requirement to wear standard PPE does not apply in the following cases:

- When staying in the cafeteria, office spaces, control room and other indoor areas without increased risk. Wearing heavily soiled work clothing should be avoided as much as possible.
- Employees who move on the site via the red path (movement to and from the workplace / changing room / cafeteria)
 - The red path is the safest route to get to the workplace.
 - Although civilian clothing is allowed, it is recommended to wear the standard PPE when you have had the opportunity to change.
- In the smelter of Balen and Pelt, cotton clothing is mandatory when one is within 3m of liquid metal. Customized work suits are available for these individuals.
- For groups of visitors who do not enter risk zones, the requirements can be relaxed in accordance with the risk. The condition is that the footwear is sufficient; is sturdy (no stiletto heels, flip-flops or open shoes).
- In maintenance workshops and in the garage, you can fall back on long-sleeved clothing (no standardized top required) in exceptional cases on the basis of a TRA approved by the department's maintenance manager.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**



If no lifting work is carried out in the workshop or there is no risk of falling parts, work can be done without a safety helmet.

- The standard PPE applies to drivers, but deviations may be made depending on the specific loading and unloading instructions. - Loading and unloading products at the height of the warehouse can be done with the wearing of closed clothing with long sleeves and long pants and increased visibility, unless the nature of the product to be unloaded entails an increased risk.

Additional PPE is always allowed. Weakening of the standard PPE should be included in the service-specific PPE matrix after risk analysis and advice from the prevention service and the client.

4.2 Department specific PPE

Each Nyrstar department, in collaboration with the safety department, has compiled a list of **Department specific PPE**. These lists are based on the principle that PPE is permitted as protection if source measure or collective protection is not feasible. The department specific PPE relates to both the mitigation of risks from the environment and risks arising from the work. The list of Department Specific PPE includes mandatory requirements for both the employees of the department and third parties who carry out work within the department. In the latter case, the requirements are communicated to the executors through the process of granting the work permit.

4.3 General requirements for additional PPE

The following requirements apply in general terms to the choice of required PPE. When the Department Specific PPE was adopted, these requirements were already taken into account where relevant. When drawing up a risk analysis, the requirements must be used. Here too, PPE may only be used if source measures or collective protection are not reasonably feasible.

4.3.1 Face protection

During grinding work, a face shield with safety goggles underneath must be worn to protect the face. This has been chosen to provide protection in the event of fragmentation of the grinding wheel. If the work does not allow the wearing of a face shield (e.g. lack of space), then at least goggles must be worn. The deviation must be [motivated with a TRA](#) and registered on the work permit.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**

 nyrstar

Balen/Pelt

4.3.2 Respiratory protection

In case of exposure to hazardous gases, vapours or dust particles, adequate respiratory protection must be worn. When choosing the type of respiratory protection, the content of the appendix 1 must be taken into account.

4.3.3 Hearing protection

It is recommended to wear hearing protection from 80 dB(A) and should be worn with an exposure above 85 dB(A). Both the noise level of the environment (to be checked via the so-called noise maps) and of the work must be taken into account.

Hearing protection must be worn as standard during grinding work.

4.3.4 Foot protection

Metatarsal protection can always be worn during frequent handling of heavy objects (e.g. cathode plates, zinc blocks, zinc ingots, etc.).

In case of high-pressure cleaning, see VV 14 Rinses [XP-452-VV-0-00014](#)

4.3.5 Possible contact with acid or leach

See VV 20 Risk of Acid/Base Contact (Lye): [XP-452-VV-0-00020](#)

4.3.6 Possible contact with hot mass or liquid metal

See VV 02 Working with hot mass or liquid metals: [XP-452-VV-0-00002](#)

4.4 Requirements to be observed when using PPE

PPE should be used in accordance with legal requirements. Specifically (but non-restrictive) the following points are cited.

- The user must use the PPE in accordance with the instructions;
- The user must ensure that the PPE is kept clean and stored correctly;
- No changes or adjustments may be made to PPE.

The user's employer is responsible for ensuring that the user is instructed in the use of the PPE, is (medically) suitable for their use and is provided for supervision of correct use. This regardless of who provided the PPE.

In the event of a dispute about the PPE to be used, advice should be sought from Nyrstar's safety department. This advice is binding for the further approach.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**

 nyrstar

Balen/Pelt

4.5

4.6 Provision of PPE

Nyrstar employees (own employees and interim staff) must use the range of PPE available in the warehouse (order via SAP MM). Alternatives may only be used after consultation with the IDPPW. When selecting new PPE or PPE for new tasks, the selection should be made as indicated in **Annex 2**.

Contractors will provide the standard PPE + PPE at their own expense to cover the general risks arising from the execution of the works that are not specific to Nyrstar's activities. Examples (non-exhaustive):

- o Protective work clothing, safety shoes or boots, helmet, tight-fitting safety glasses, gloves
- o Welding hood, welding clothing
- o Fall protection
- o Respiratory protection required from the works (e.g. solvents when using, dust formation during grinding, [welding fumes](#))
- o Face shield (e.g. during grinding work!)
- o Spraying protective clothing HD
- o Hearing protection

Nyrstar provides the PPE that serves to mitigate the risks arising from Nyrstar's processes.

Examples (non-exhaustive):

- o When working with possible contact with acid: acid-resistant clothing (overalls/gloves, etc.), acid glasses. Neutralizing agent (BUMB) as first aid in case of contact with acid.
- o In case of possible contact with ores, corrosion dust formation/dusty environment: P3 respiratory protection, protective overall
- o Respiratory protection in the event of exposure to gases from Nyrstar's processes. This can be half face mask, full face mask with appropriate filters depending on the risk or independent respiratory protection.

Some items are provided on loan and must be returned after the work has been completed. These materials are then taken back after use, cleaned, checked and made available again.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**



Balen/Pelt

5 ANNEX 1: GUIDANCE ON THE CHOICE OF RESPIRATORY PROTECTION

1. Protection against dust


If there is (expected) exposure to dust in visible concentrations, protection against this must be worn.

For dust filters (particle filter) there are three classes, namely P1, P2 and P3. In addition to dust, dust filters also offer protection against liquid particles.

Filter type	Color band on filter	Application area
P1 , FFP1	White	MUST NOT BE USED!
P2 , FFP2	White	May only be used after RA
FFP2 + laagje actieve kool	Blue mask	Protection against acid gases thanks to a layer of activated carbon. (Zinc halls)
P3 , FFP3	White	All other cases in which inhalation of toxic dust is possible This concerns the following toxic substances: zinc concentrate (ore), roasting material (calcine), cadmium-containing dust, welding fumes, lead dust, lead-containing zinc dust, BLP dust, cobalt cake dust, copper cake dust, manganese dioxide (brownstone) dust, lead silver dust, quartz dust, ...

FF= "fitting facepiece" or maintenance-free disposable masks

The operating time or breakdown time of the dust filter is reached if a form of breathing resistance becomes noticeable in the mask. Even with excessive perspiration and very moist breathing air, such as with a cold, disposable masks/snouts can become saturated sooner, which may require replacement for hygienic reasons. On the other hand, if the masks are dirty on the inside (due to hand contact or polluting dust,..), replacement is mandatory.

<p>SAFETY REGULATION VV 01</p> <p>The provision and use of</p> <p>Personal protective equipment (PPE)</p>	 Balen/Pelt
--	---

2. Protection against gases and vapours

If there is exposure to gases or vapours, protection can be provided by means of a gas filter or combinasty filter. The choice of filter type depends on the nature of the substance against which it provides protection. To do this, color codes (visible as a band on the filter) and letters are used with the following meaning.

Filter type	Color band on filter	Application area
A	Brown	Organic vapours and solvents with boiling point > 65° C, ethanol, acetic acid
AX	Brown	Organic vapours and solvents with boiling point < 65° C (acetone, methanol).
B	Gris	Inorganic gases and vapours : Hydrogen sulphide H ₂ S, chlorine gas Cl ₂ , hydrochloric acid HCl, nitrogen dioxide NO ₂
E	Yellow	Zwavedioxidegas SO ₂ , zwaveltrioxide SO ₃ , mierenzuur, azijnzuur, en andere zuur reagerende stoffen
K	Green	Ammonia gas NH ₃ and organic ammonia compounds
CO	Black	Carbon monoxide (better protection is independent with e.g. compressed air bottles)
Hg	Red	Metallic mercury vapour and mercury-containing dust, calomel (mercuric chloride)

A common type of filter is the ABEK, which thus provides protection against organic gases and vapors, inorganic gases and vapors, acidic vapors and ammonia.

The absorption capacity of gas filters is divided into three classes:

- Class 1: low capacity, concentrations up to 1000 ppm (0.1 volume%)
- Class 2: medium capacity, concentrations up to 5000 ppm (0.5 volume%) and
- Class 3: large capacity, concentrations up to 10,000 ppm (1 volume %). With an A3 filter up to 8000 ppm.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**

nyrstar

Balen/Pelt



Figure: Example of a filter bus with encodings (color band, letter and class)

Saturation of the filters (= end of life) must be taken into account. Saturation will lead to the gas or vapor passing through the filter.

The service life of a gas filter depends on many factors:

- The nature of the gases/vapours to be removed, which are important determinants of the active life of a filter. Not all substances bind equally easily to activated carbon.
- A combination of different substances can negatively affect the useful life of a filter. The activated carbon has a preference for certain substances. So much so that it releases previously bound substances again.
- High temperature and humidity have a negative impact. In particular, if the filter is not properly sealed airtight after use, it continues to absorb contamination and water vapor from the ambient air. Closing a filter on both sides when it is not in use therefore extends its lifespan.
- If the filter has already been used and is kept for the next "use", the contamination can move through the filter. This can cause the contamination to enter the mask through the filter during the next use.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**



- The presence of product droplets/mist allows activated carbon to be saturated more quickly. Therefore, if possible, use a P pre-filter in those situations.

The following rules should therefore be followed:

- Always respect the expiry date stated on the filter
- If there is any sense of smell, taste or change in the stimulus when inhaling, replace the filter immediately.
- If the breathing resistance increases, replace the filter (especially with dust filters)
- If the filter has become damp or wet, replace it (the filter will then become noticeably heavier)
- If a maximum duration of use is prescribed, always respect it (e.g. for Hg filters max duration = 50 h). This is also stated on the filter.
- In case of possible exposure to toxic gases without odour, it is best to replace the filter each time after use or use independent respiratory protection.
- If the filter is removed from the original packaging, always state the date on the filter. If this > is 3 months old, the filter must be replaced.

3. Independent respiratory protection


In the event of exposure to high concentrations of gas or vapour resulting in possible acute injury and in the event of exposure to hazardous gases or vapours in confined spaces, independent respiratory protection should be chosen. This can consist of fresh air hoods or breathing air equipment. For the confined space, the requirement is specified in the entry sheet.

SAFETY REGULATION VV 01

**The provision and use of
Personal protective equipment (PPE)**

The logo for nyrstar, featuring a blue star above the word "nyrstar" in a bold, lowercase sans-serif font.

Balen/Pelt

SAFETY REGULATION VV 01 The provision and use of Personal protective equipment (PPE)	 Balen/Pelt
---	---

6 ANNEX 2: PROCEDURE FOR THE CHOICE OF PPE

