SAFETY REGULATION VV03 HOIST	nyrstar Balen/Pelt
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1 PURPOSE 2
2 SCOPE 2
3 REFERENCES AND DEFINITIONS 2
3.1 Credentials 2
3.2 Definitions 2
4 REQUIREMENTS 3
4.1 Inventory and identification of lifting materials 3
4.2 Education 4
4.2.1 Hoisting machine operators / Riggers / signalers 4
4.2.2 Performers of specific routine lifting works 4
4.2.3 Other persons 4
4.3 Maintenance and inspections 4
4.3.1 Functional test of overhead- and gantry cranes 5
4.3.2 Lifting and hoisting equipment 5
4.4 Lifting equipment used for hoisting people 5
4.5 Lifting plans 6
4.5.1 Special hoisting 6
4.5.2 Routine hoisting work ..... **Error! Bookmark not defined.**
4.6 General precautions during hoisting work 8
4.6.1 Cranes, overhead cranes and hoists. 8
4.6.2 Lifting accessories 9
4.6.3 Wind and thunderstorms 9

SAFETY REGULATION VV 03 **Hoist**	nyrstar Balen/Pelt

1 PURPOSE

The purpose of this document is to describe how lifting and hoisting operations and lifting and hoisting equipment should be handled within Nyrstar, to ensure that the requirements for hoisting operations are described and that the risks associated with hoisting have been correctly identified, handled and managed.

2 SCOPE

This standard covers all hoisting materials (cranes, hoists, mobile cranes and hoisting accessories) on the Nyrstar site (both own material and material from contractors) and hoisting work on the Nyrstar site carried out by our own personnel or contractors.

3 REFERENCES AND DEFINITIONS

3.1 Credentials

Nyrstar group document : Technical Safety & Health Standard TS 215 Lifting & Rigging
XF-452-FCH-0-00003 : PBW-Checklist Hijsen

3.2 Definitions

Hoisting accessories	All materials for lifting loads such as brackets, eye bolts, lifting straps, chains, cables, … .
Rigger	A trained person who is responsible for correctly rigging loads. This includes determining the correct lifting methods, attaching the lifting accessories and ensuring that the load is moved safely.
Signaller	Competent person who gives the instructions to the crane operator to move the load with attention to the load, the environment and people. He may not give instructions to the crane man before he has the approval of the rigger to be allowed to hoist.
Routine hoisting	Concerns all routine hoisting operations in which the same hoisting equipment, the same load and the same hoisting accessories are always used.
Occasional lifting	Concerns all lifting work that is only occasionally carried out for certain activities to be carried out.
Hoisting equipment	A generic term used to cover both, lifting and hoisting gear and lifting and hoisting appliances/ machines. This covers any work equipment used for hoisting or lowering loads, and includes its attachments(slings, braces, chains) used for anchoring, fixing or supporting the to be anchored load.
Hoisting tool	Any manual or driven device capable of hoisting, lowering or suspending loads. Including the rails, suspension structures, gearboxes and gear used in connection with such a machine. Excluded from this description are

SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

	automatically controlled installations. (e.g. cathode depot)
Inspection	This refers to the check that checks whether the material may be used as described by the manufacturer and for the authorised application. This concerns both the quarterly inspection of lifting and hoisting equipment and the annual inspection of the mechanisms and structures.
Designated person	Person appointed by the employer and found competent to perform certain tasks.
Qualified person	Person who demonstrates through diplomas, training certificates, extensive knowledge, training or experience that he is competent to solve problems in a particular field.
Independent organism	Inspection company that, as an independent body, is able to issue legal certificates about their established inspections.
Maximum load	The maximum permissible load that can be safely hoisted by a hoisting device or lifting accessories. This load is applied to each device. This is also stated in the inspection reports.

4 REQUIREMENTS

Each Nyrstar site must establish, implement and maintain a written hoisting procedure in accordance with the Nyrstar Standard and local legal obligations. As required by Nyrstar standard, Nyrstar Balen-Pelt has appointed a person responsible for the hoisting work and management of the lifting equipment on its site. The SHEQ manager takes on this task and is responsible for ensuring that the following tasks are carried out:

- The review and adjustment of the "Safety Regulation Hoisting" by the person responsible for this procedure. The manager SHEQ will pass on to him any changes in the Nyrstar standard. Changes in the legal regulations will be reported by the prevention advisor.
- Verification of compliance with the conditions described in the Nyrstar standard and the legal obligations such as training, inspections and required certificates. (this is done by internal audits)
- Conducting a yearly self-assessment concerning the follow-up of the safety requirement for hoisting, which guarantees the Nyrstar standard and legal obligations. (this is done by internal audits: CSR)

4.1 Inventory and identification of lifting materials

The site must maintain an inventory in which the following information is included

- The maximum load
- The unique identification number

SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

- The date of the last inspection

All hoisting equipment must be marked with an unique identification number and its maximum load to allow checks on inspection or use during hoisting operations.

If different max loads are possible for an equipment, a load table must be present. This load table must be clearly visible and available to the user.

Lifting equipment without a clear identification or valid inspection must be taken out of use, apply the STOP reflex.

4.2 Education

Anyone involved with hoisting equipment regarding the operation or maintenance of it should receive training tailored to the assigned tasks.

4.2.1 Hoisting machine operators / Riggers / signalers

Only designated personnel will be allowed to operate hoisting equipment and will receive appropriate theoretical and practical training in function of the hoisting equipment to be operated. This training will include at least the following

- Working conditions in which the works are carried out
- Performance characteristics and complexity of hoisting equipment
- The type of load(s) to be handled
- The responsibility of the operator and other persons involved in the hoisting work

Training records shall be kept and training shall be refreshed at least every five years. In the case of mobile cranes the lifting machine operators shall have a legally recognized certificate.

4.2.2 Performers of specific routine lifting works

The performers of specific routine hoisting works are trained through a shortened training based on a task risk analysis to be able to perform their tasks safely. These persons may not perform any other hoisting activities outside their training.

4.2.3 Other persons

Persons who are exposed to hoisting activities but who are not themselves involved in these works should receive general training with regard to the dangers of hoisting activities. For our site, this is included in the VCA training.

4.3 Maintenance and inspections

Lifting and hoisting equipment must get the necessary maintenance and the mandatory inspection based on the manufacturer's requirements and the legal requirements.

SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

4.3.1 Functional test of overhead- and gantry cranes

For all cranes, a functional test must be carried out by the user and registered on the LMRA card or the local control form at the start of each shift or before the first use during that shift. This test will include the following checks

- A test of all the controls and the emergency stop: if controls do not work, they must be repaired before the works can start.
- Carry out a visual inspection of the cables and hoisting equipment to avoid major risks associated with damaged material.
- Check that the crane and the hoisting equipment have the valid colour code of the last inspection of lifting and hoisting material.
- The functional test is noted on the LMRA card or the local control form that the user of the hoisting equipment carries in his pocket during the works as is customary with the work permit. In this way, the user can demonstrate that he has performed the test.

4.3.2 Lifting and hoisting equipment

- As legally required, our lifting and hoisting equipment is inspected quarterly by a recognized body. All the material that has been inspected is given a colored strap so that one can see when the last inspection has been carried out. The appropriate color is displayed in various places within the department. The mechanisms and structures are inspected annually as prescribed by law. All this data is managed in the inspection database and the inspection reports of AIB Vincotte that we have in our possession.
- Each user must check the lifting and hoisting equipment for damage or deformation before lifting work. The material should be replaced if it is not in order, apply the STOP reflex.

4.4 Lifting equipment used for hoisting people

Hoisting equipment designed to hoist persons must be clearly marked that the material is suitable for this purpose. There should also be an indication of the maximum number of persons that may be hoisted corresponding to the maximum load to be hoisted.

Hoisting equipment that is not designed for hoisting persons may only be used in exceptional circumstances if there are no other safer methods of carrying out the work. A risk analysis must then be carried out and all the necessary tests and inspections must be carried out to ensure the safe use of these products.

If a crane is used, it must be checked whether this crane is suitable for carrying out these works safely. The crane must be equipped with all legally required safety features such as load limiter and limit switch. Before starting the works, an inspection certificate of the combination crane with the accompanying passenger box must be submitted. This examines the safe attachment of the passenger box to the crane, the safe securing of the fall protection of the persons to the crane and also examines whether the combination is suitable for the weight to be hoisted. The crane and passenger box must be checked daily.

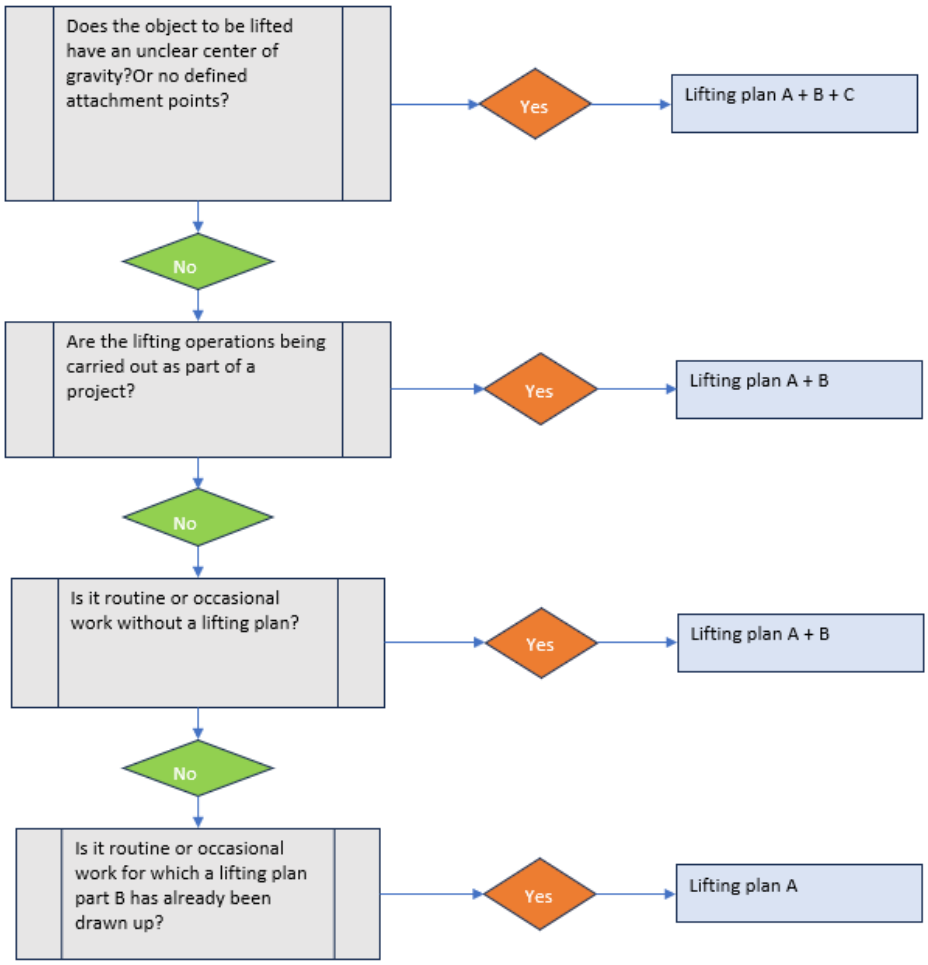
SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

The hoisting of persons may only be carried out with the written permission of the prevention adviser or his replacer.

4.5 Lifting plans

In addition to the measures described in this safety regulation, it is mandatory to complete the lifting plan (XF-452-FCH-0-00003). This must be drawn up before the actual start of the work and sent to the work planner/area planner or the person in charge of the department. Based on the decision diagram, it is determined whether it should be part A, B and/or C. The lifting plan must be present at the place of execution.

Deviations from the lifting plan, without a negative impact on safety, must be discussed with all those involved (operator, rigger, signaller, client, owner, etc.) and these must be approved by the work planner/area planner or the person in charge of the department. Advice can always be sought from the prevention advisor and/or safety coordinator.



SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

The lifting plan always contains the following components (part A):

Identification of the staff (surname, first name, position, diploma/certificate).

Identification of the material (type, identification number, max. load, test certificate).

Checklist (IED drawn up and discussed, underground and above-ground pipelines known, wind speed checked, load table clearly visible, obstacles in turning circle known and discussed, lifting zone fully demarcated or monitored, agreements made regarding communication, surface sufficiently firm, outrigger pads present and correctly placed).

In addition, based on the type of hoisting work, a layout plan (= part B) and/or noose plan (= part C) is required.

4.5.1 Lifting objects with unclear center of gravity or no defined stop points

Lifting works with an unclear centre of gravity or without defined stop points require increased attention and caution. To draw up this lifting plan, we call on expert external companies when we do not have these competencies in-house. Parts A, B and C of the lifting plan apply to these works.

4.5.2 Lifting work in the context of a project

For lifting work in the context of a project, parts A and B of the lifting plan always apply.

4.5.3 Routine or occasional lifting

For routine lifting work in which the same lifting equipment, load, lifting accessories and the lifting location are always used, it is sufficient to draw up part B of the lifting plan 1 time. For the same routine work that follows, this may then be supplemented with part A of the lifting plan that is drawn up specifically for each lifting work.

Even for occasional lifting work that is only carried out occasionally, it is sufficient to draw up part B of the lifting plan once. For the same occasional works that follow, this may then be supplemented with part A of the lifting plan that is drawn up specifically for each lifting work.

SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

4.6 General precautions during hoisting work

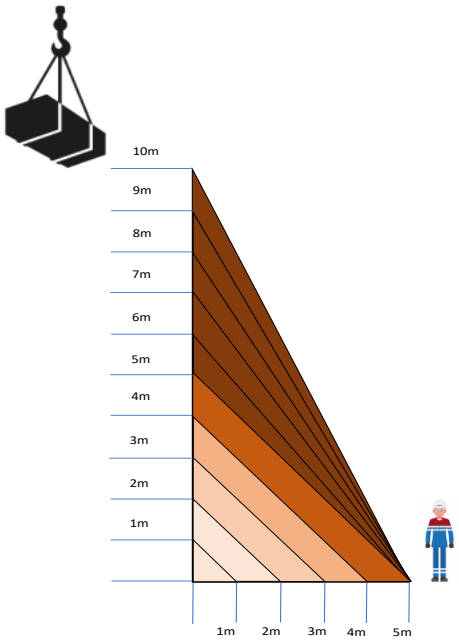
4.6.1 Cranes, overhead cranes and hoists.

- All the cranes must have an indication of the maximum load that is visible from the ground. In case there are two lifting points on a hoist, the max. last.
- Before the start of the works, the person responsible for the lifting works will check the necessary documents for the mobile hoisting and lifting equipment and for the crane operator and rigger and mention them on the lifting plan.
- All the hooks must be in accordance with the max. load of the crane and must have a safety valve to prevent the load from coming loose.
- You should never overload lifting equipment or stop material, so check whether the material is suitable for the load that needs to be lifted.
- Protect the stop material from damage to sharp-edged loads and ensure that the stop material does not rub against anything during lifting.
- The load must be securely rigged both in terms of the stability of the load and the release of the load.
- The rigger determines whether it is safe to lift the load, apply the STOP reflex in case of doubt or unsafe situations.
- The supervision of the load must always take place outside the line-of-fire (see figure below). Only after drawing up TRA, with adequate measures, can guiding within the line-of-fire be allowed.
- Manual manipulation of the load must be kept to a minimum by providing appropriate tools (rope, magnet, stick, etc.). Only in exceptional cases and after TRA has been drawn up is it allowed to manually supervise the load. Impact resistant gloves are then mandatory to wear.
- No lifted load should ever be left unattended. This is only permitted if a task risk analysis shows that this can be done in a safe manner.
- It is forbidden for the operator of cranes or overhead cranes to use a mobile phone or walkie-talkie (other than related to the lifting work) during the lifting work.
- For mobile cranes, the load table must be clearly visible to the operator. The load limiter must be in operation and must never be bypassed.
- If the operator of the crane cannot visually follow the load over the entire lifting path, an appropriate means must be provided for the signaller to ensure good communication with the operator.
- If there are works near the tracks of overhead cranes, the crane may not come closer than 6m if there is a possibility of collision.
- When working with cranes in the vicinity of high-voltage lines, the prescribed minimum distances must be strictly respected (4 metres for lines from 30 kV to 70 kV, 5 metres for lines from 70 kV to 150 kV, and 6 metres for lines from 150 kV to 380 kV), and it is mandatory to provide a detailed lifting plan, as described in Lifting Plan Part B – Layout Plan, . Always contact the grid operator for specific measures imposed.
- Outrigger pads should always be used because the entire site is considered to be disturbed soil. Therefore, the outrigger pads must have a minimum surface area in order not to exceed the maximum dynamic ground pressure of 25 tons/m2.

SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

- No crane may be set up in places where there is a risk of damage to underground pipes or sewers.
- If the installation or use of the hoist leads to the blocking of roads or escape routes, road signs and alternative routes must be indicated.

- When working with mobile cranes, the lifting zone must be demarcated and persons who are not part of the work are not allowed in this zone. If demarcation is not possible, the zone may be guarded by authorised persons accompanied by an audible signal.
- It is forbidden for anyone to go under hanging loads. Please take into account the following safety distances.



4.6.2 Lifting accessories

- All hoisting accessories must be legible and marked with a maximum load.

- All hoisting material must be stored in a suitable place to prevent rusting, rotting or deterioration of the material. This environment depends on the material used.

- Before using lifting equipment, the user must check this equipment for damage or defects. Damaged or defective material should be removed from service immediately, apply the STOP reflex. If the material cannot be repaired, it must be destroyed and removed from the inspection lists.

SAFETY REGULATION VV 03 Hoist	nyrstar Balen/Pelt

4.6.3 Wind and thunderstorms

All works must be stopped as soon as the weather conditions are such that the safety of the employees and the safety of the company are endangered, apply the STOP reflex.

All cranes must be equipped with an anemometer. For the Balen and Pelt sites, a measuring device is also available from the asset department. This will be set up in the highest possible place.

In any case, the site will ensure that the lifting work is stopped at wind speeds higher than 38 km/h or if the safety on the crane or the crane operator can no longer guarantee safe operation, apply the STOP reflex.

If necessary, extra measures are taken to prevent the hoists from tipping over or the loads to be lifted uncontrollably.