GENERAL REQUIREMENTS for Health, Safety and Environment in the workplace
GOLDEN SAFETY RULES

RULE 1
I will be in full control of my faculties to work in a safe way. I will NEVER BE UNDER THE INFLUENCE of ALCOHOL, DRUGS or ANY OTHER TOXIC SUBSTANCE during my working hours.

RULE 2
I will RESPECT ALL SAFETY RULES, procedures, warning signs, and I will always WEAR THE REQUIRED PERSONAL PROTECTION EQUIPMENT.

RULE 3
I will respect RAIL PRIORITY and stay out of hazardous areas & I will always adhere to TRAFFIC REGULATIONS.

RULE 4
I will respect all RULES of LOAD HANDLING. I will never stand under/close to a suspended load and I will avoid putting my colleagues in similar danger.

RULE 5
I will keep a SAFE DISTANCE FROM MOVING MACHINERY and vehicles.

RULE 6
I will not disable any SAFETY DEVICE and will ensure that they are always OPERATIONAL.

RULE 7
I will strictly apply the LOCKOUT PROCEDURE when working on equipment.

RULE 8
I will obtain the specific WORK PERMIT when required to work in a confined space, on the roof, welding, hot work or work in a hazardous gas area and I will respect all the APPROPRIATE SAFETY MEASURES.

RULE 9
When WORKING AT HEIGHT, I will always use the REQUIRED FALL PROTECTION or prevention equipment.

RULE 10
I will not conceal but SHARE, in full transparency, all INFORMATION, FACTS and CIRCUMSTANCES regarding any incident.

ENVIRONMENT GOLDEN RULES

RULE 1
I help keep my work space TIDY and CLEAN.

RULE 2
I comply with the waste- sorting instructions: I SORT my garbage and I use the APPROPRIATE GARBAGE CANS.

RULE 3
I do my best to MINIMIZE ENVIRONMENTAL DAMAGE.

RULE 4
I use resources, water and energy SPARINGLY.

RULE 5
I STORE hazardous or polluting products SO AS TO PREVENT THEM FROM LEAKING. I never use their empty containers for any another use and I take them to the DESIGNATED COLLECTION LOCATIONS.

RULE 6
I MAINTAIN IN GOOD OPERATING CONDITION all the environmental PROTECTION DEVICES and the devices for measuring environmental parameters.

RULE 7
If an incident occurs, I IMMEDIATELY APPLY THE EMERGENCY PROCEDURE and I use the anti-pollution kits when it is appropriate to do so.

RULE 8
I SHARE all the FACTS, INFORMATION and CIRCUMSTANCES related to any incident in a fully transparent manner.
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Dear Sir/Madam

These general requirements for health, safety and the environment are intended for all NLMK La Louvière employees, including temps and companies working on our premises (contractors and any subcontractors), visitors and trainees.

They aim to raise awareness of NLMK La Louvière's core values and provide information in a variety of fields to help prevent the main risks encountered in our company.

**They are a work tool and a starting point for:**

a) the safety passport  
b) the site launch meetings organized with external companies working on our premises  
c) safety training and meetings held in the departments

We strongly advise that you use and reread this document regularly.

If you have any doubts regarding an issue related to safety or the environment, please contact the Internal Prevention and Safety Service (SIPPT) on 064/272046.

The NLMK La Louvière Management Team
CHAPTER 1
EMERGENCY PROCEDURES
IN AN EMERGENCY

Call 900 from an internal telephone or 064/272 900 from a mobile.

Give:

1. Your name and your telephone number
2. The nature of the accident: fall, explosion, fire, contamination, etc.
3. The location of the accident: ambulance point, etc.
4. The number of people injured and the type of injury or contamination: broken leg, burns, hydrocarbon spilled on the floor or down the drain, etc.
5. The condition of the victims: not breathing, bleeding heavily, fainted, etc.

Follow any instructions you are given and never hang up first. Send somebody to the ambulance point to guide the emergency services.

IN THE EVENT OF EVACUATION

Go to the nearest assembly point.
Assemble, do a head count and report any missing people.
1.1. EMERGENCY PROCEDURES
We are all responsible for:

1. Raising the alarm: notify the emergency services as quickly and as correctly as possible

Several measures have been introduced at NLMK La Louvière:
• geographical breakdown of the company into zones
• marking of each zone with a suitable sign (ambulance points)
• the emergency number, the assembly point and the ambulance point are indicated on a sticker on the telephone.

Guidelines:
Before starting your work, make sure you are able to call the emergency services and guide them without wasting any time.
Familiarize yourself with the ambulance point in your work zone and the location of the nearest landline telephone, and if you have a mobile, save the emergency number in it: 064/272 900

2. First steps:
In all major cases, every second counts. It is therefore essential that trained personnel (First Aiders) in the immediate vicinity of the victim can administer first aid without delay. Call 900 or 064/272 900.

1.2. IN THE EVENT OF A FIRE
As a priority:
Call the emergency services immediately on 900 or 064/272 900

• Turn off energy supplies (gas, electricity)
• Help with evacuation without putting yourself in danger. Contain the fire using the means at your disposal
• Facilitate the arrival and work of the emergency services

A few guidelines:
• Fire-fighting equipment: different types of hydrants and extinguishers are available on the site (see Appendices).
• Attack the flames at their base
• Make sure you always have an exit, do not allow yourself to be trapped or cornered by the fire and always retreat in good time
• If there is a lot of smoke, get down on the ground and cover your mouth with a damp cloth to protect yourself
• Do not use water on electrical equipment
• If your clothing catches fire, do not run. Roll on the ground and try to put out the fire by wrapping something around you (blanket, rug, etc.)
1.3. USEFUL NUMBERS

Use our internal telephones or dial 064/272900 from a mobile and give the number of the work zone’s ambulance point.

Internal Emergency Office ...........................................(064/27) 2721

Prevention Service (SIPPT):
Head of Department .................................................(064/27) 2046
Prevention Adviser .......................................................(064/27) 2843

Medical Service (SEPPT):
Works Doctor ..............................................................(064/27) 2623
Clinic ...........................................................................(064/27) 2671

If you have been a victim of psychological or sexual harassment or violence, please report it to the psychologist or works doctor in our External Prevention and Safety Service (SEPPT). The telephone number for the psychosocial risk counselor is 02/7387531, available Monday to Friday from 8:30 am to 5 pm, and the fax number is 02/7350136. Contact them in complete confidentiality.

Surveillance Department (site security) .............(064/27) 2620

1.4. SAFETY PICTOGRAMS

Prohibitive signs

- No pedestrians
- No smoking/vaping
- No naked flames
- No entry for unauthorized persons
- No parking
- No entry
- Stop

Signs giving orders

- Protective clothing must be worn
- Pedestrians only
- Fall protection must be worn
- Head protection must be worn
- Face protection must be worn
- Respiratory protection must be worn
- Self-contained breathing apparatus must be used
- Hearing protection must be worn
- Eye protection must be worn
- Hand protection must be worn
- Foot protection must be worn
- Reverse parking mandatory
CHAPTER 1

EMERGENCY PROCEDURES

Fire-fighting signs
- Fire alarm button
- Route to fire-fighting equipment
- Fire extinguisher
- Ladder
- Fire hose

Rescue and emergency signs
- Ambulance point
- Route to an emergency point or lifesaving device
- Safety shower
- Eyewash
- Assembly point
- Defibrillator
- Location and direction of an emergency exit
- Direction of an emergency exit
- Direction of an emergency exit
- Location of an emergency exit

Warning signs
- Harmful or irritant substances
- Low temperature
- Biohazard
- Falling hazard
- Tripping danger
- Rotating part
- Explosive atmosphere
- Oxidizing substances
- Laser radiation
- Radioactive material
- General danger
- Electrical danger
- Handling vehicles
- Suspended loads
- Corrosive substances
- Toxic substances
- Explosive substances
- Flammable substance
- Risk of asphyxiation
- Hot surface

General requirements for health - safety - environment in the workplace
In an EMERGENCY: Internal telephone: 900 - Mobile: 064/272.900

Safety Measures

NLMK La Louvière Updated on 22-08-2017

General factory - Prevention and Safety
2.1. THE 10 GOLDEN SAFETY RULES

The Golden Safety Rules apply to everybody on the site: workers, visitors, drivers, delivery drivers and personnel of external companies. They complement the hazard identification and risk management approaches in our company.

Rule no.1
I am in full control of my faculties for doing my job safely. I DO NOT CONSUME and I am not under the influence of ALCOHOL, DRUGS or any OTHER TOXIC SUBSTANCE during my working hours.

Rule no.2
I FOLLOW ALL OF THE SAFETY RULES, procedures and signs and I ALWAYS WEAR ALL THE PERSONAL PROTECTIVE EQUIPMENT (PPE) appropriate to my work.

Rule no.3
I respect the RAIL PRIORITY, I keep my distance from the tracks and I apply the rules regarding ROAD TRAFFIC.

Rule no.4
I apply all of the RULES related to HANDLING OF LOADS, I do not walk underneath or near to suspended loads and I do not put my colleagues in danger.

Rule no.5
As I move around, I must KEEP MY DISTANCE FROM MOVING MACHINERY OR EQUIPMENT.

Rule no.6
I respect all of the SAFETY DEVICES and make sure they are ACTIVE at all times.

Rule no.7
I carefully follow the LOCKOUT PROCEDURES before carrying out any work on a piece of equipment.

Rule no.8
If I am doing specific work (confined space, pipes, roof, fire, gas zone, etc.), I get a SPECIAL PERMIT and I must apply all of the APPROPRIATE SAFETY MEASURES.

Rule no.9
When carrying out WORK AT HEIGHT, I always use APPROPRIATE PROTECTION.

Rule no.10
I am completely transparent when it comes to SHARING all the FACTS, INFORMATION and CIRCUMSTANCES regarding an incident.
2.2. ALCOHOL, DRUGS AND TOXIC SUBSTANCES

At NLMK La Louvière, it is officially forbidden to bring onto the site, consume or be under the influence of alcohol, drugs or any other toxic substance. It is also forbidden to attend internal events where alcoholic drinks may be consumed.

The NLMK La Louvière Management Team adopts a ZERO-tolerance approach. Serious disciplinary action will be taken against any worker who breaks this rule, possibly extending as far as termination of the employment contract.

It is our responsibility to ensure that this rule is adhered to. We must therefore be increasingly vigilant and reinforce our checks or we risk making ourselves complicit in the situation.

If somebody is under the influence of alcohol, drugs or any other toxic substance, they are not only a danger to themselves but also to their colleagues. If somebody is directly confronted with an issue related to alcohol, drugs or any toxic substance, the SIPPT and the SEPPT are on hand to answer any questions and help them to find the best solutions. Don’t hesitate to speak to them!

We count on your vigilance and collaboration to ensure that alcohol, drugs and their effects are kept away from our factory definitively.

No smoking

All workers have a right to a workplace and common areas free from tobacco smoke. It is forbidden to smoke or vape anywhere in the factory, even outside the buildings, with the exception of the designated smoking areas provided and signposted by the pictogram below.

The smoking ban is therefore absolute, even for workers who have their own personal work space.

The representatives of external companies and visitors must abide by these rules.
2.3. SAFETY RULES AND PERSONAL PROTECTIVE EQUIPMENT

2.3.1. Compliance with safety rules

To reduce the risk of accidents/incidents and their consequences, it is vital that everybody follows the safety rules established at NLMK la Louvière.

To ensure that each worker remains able to detect, prevent and anticipate the risk of accidents/incidents at all times, everybody must also remain vigilant and aware and keep full control of the machinery, equipment and tools they use.

As a result, anything that is likely to distract them, such as:

- using a mobile telephone, computer or other telecommunications device, for private or inappropriate purposes (e.g. surfing the internet, playing computer games or other types of entertainment, etc.);
- listening to music that is too loud;
- engaging in reading not related to performance of their job;
- practicing any other activity not directly linked to their professional occupation;
- etc.

is strictly prohibited at NLMK La Louvière.

2.3.2. Personal protective equipment (PPE)

- Head protection must be worn
- Foot protection must be worn
- Protective clothing must be worn
- Protective glasses or face shield must be worn
- High-visibility clothing or a vest must be worn when walking outside the halls
Depending on the workstation risk analysis:

- gloves, mittens, etc. (appropriate to the risk) must be worn when handling sharp, sharp-edged, barbed or burning objects or when the hands may come into contact with toxic, acidic, caustic or irritant substances.
- If wearing rings that cannot be removed poses a risk, gloves must be worn at all times.

- hearing protection must be worn where this is mandatory or advised

- and other protection must be used, such as masks and breathing apparatus, welding visors, etc.

Personal Protective Equipment (PPE)

It is mandatory for all internal and external workers, employees and supervisors, subcontractors and visitors to wear personal protective equipment across the whole company site and in vehicles belonging to the company, with the exception of:

- in private and/or personal company vehicles
- on the journey from the car park next to the offices or cloakrooms
- in the offices themselves
- on external pedestrian walkways clearly identified as such.
2.4. INTERNAL TRAFFIC

2.4.1. Road traffic

The Highway Code applies within the company. Respect the internal road signs.

If a vehicle uses its sirens and visual signals in an emergency, you must quickly make way for it.

2.4.2. Rail convoys

Rail convoys have priority over other means of transport.

To work within the railway lines, i.e. within 2 m of the line or ≤ 5 m above the line, you must have a written work permit from the traction service and get it to restrict the line.

It is forbidden to stop/park a vehicle, trailer or site hut ≤ 2 m from the rail.

It is forbidden to overtake near to or on a level crossing.

It is strictly forbidden to drive on the tracks outside of the level crossings.
Access by vehicles such as caravans, mobile homes, etc. is strictly prohibited.

Access is only granted for the places and for the period during which the undersigned and/or the goods (e.g. vehicle) have to be on site.

Once expired, the access badge should be returned to the Surveillance Department.

External companies only have access to the installations designated when the site opened. They are officially forbidden from leaving their site without good reason. Unless absolutely necessary, access to buildings (common areas, offices, etc.) or divisions other than the site in question is not permitted.

2.4.4. Vehicles

Vehicles must be parked in the designated car park nearest to the workplace/location of the visit. Parking on roads is strictly forbidden at all times.

Parking a vehicle inside the factory overnight is forbidden (unless authorized by the Logistics and Surveillance departments).

2.4.5. Pedestrians

A few guidelines for moving around the site:

• use the walkways and passageways provided for pedestrians and do not run
• hold the handrail on stairs
• pay attention to obstacles and uneven floors
• never stand under a suspended load and pay attention to the movements of vehicles and handling equipment

Color codes for pedestrian traffic

Respect pedestrian rights of way and doors reserved for pedestrians.
2.4.6. Surveillance Department
As soon as a vehicle causes or has an accident, regardless of how minor it is, the driver must immediately contact the Surveillance Department (tel.: 064/272620) to make a statement.

Surveillance Department personnel are authorized to:
- check the people and vehicles driving on the site
- direct road traffic and enforce traffic rules
- write and submit the statement of findings
- assist personnel in the event of an emergency and help to establish the necessary safety perimeters

Unless authorized in writing by the NLMK La Louvière Communication Department, it is forbidden to use photographic equipment and/or cameras or any other device for taking photographs.

2.5. HANDLING

RULE NO. 4
I apply all of the RULES related to HANDLING OF LOADS, I do not walk underneath or near to suspended loads and I do not put my colleagues in danger.

2.5.1. Risks associated with handling
- Handling work – crane placement
- Handling using electromagnets
- Heavy manual handling
- Collision between the load and personnel
- Collision between machines (cranes, bridge cranes, etc.)
- Unexpected movements, unrestricted range
- Unstable loads, falling loads or objects

2.5.2. Use of lifting equipment/accessories
Lifting equipment and accessories can only be used by qualified, trained personnel.
They can only be used if and only if it has a tag on it with a correct validity date. Only an inspector from the External Technical Inspection Department (SECT) is authorized to affix an inspection tag.
• If the equipment/accessory is in order: the tag attached will have a color that corresponds to the inspection quarter with the expiry date.

• If the equipment/accessory is not in order: the tag attached will be red.

• For equipment that is inspected annually (ladders, PPE, overhead cranes), white tags with an annual expiry will be used if the item is in order, otherwise a red tag is applied.

• Any lifting equipment that does not have a valid tag MUST NEVER be used

Pay attention to bridge cranes: when the in-depth inspection of an overhead crane has been completed, a white tag will also be put on it. Therefore, in January (in-depth inspection period), the overhead cranes should have a yellow tag valid until the end of April + a white tag valid until the end of January of the following year.

2.5.3. The six rules of a slinger

1. Evaluate the load (weight, dimensions)
2. Refer to the slinging table
3. Wear suitable gloves for handling slings
4. Inspect the slings used and check the tags
5. Protect any sharp edges
6. Clearly command the operation

For further information concerning the different gestures, please refer to the Appendices.
2.5.4. Handling/lifting equipment

Use handling machinery and accessories that are:
- suitable for the work to be done
- in good condition
- inspected regularly by an approved body
- inspected by users when they start work and before each use

Guidelines:
- Do not access crane runways and overhead cranes without permission from the crane operator (lockout).
- Use lifting machinery only for the type of work for which it is intended.
- Do not use accessories that are in poor condition, suspect accessories or accessories that have not been inspected by an approved body (SECT).
- Prepare the loading and drop-off locations, identify the route that the load will take and keep pathways clear over a width that is compatible with the dimensions of the parts to be handled.

The loads:
- Make sure that the slings and other accessories used are in good condition before each use.
- Do not exceed the maximum load of the machinery, slings, chains, ropes and lifting accessories, in accordance with the load table.
- Make sure that loads are balanced and ensure that the type of slinging and the slings are chosen according to the load.
- Make sure that all of the load elements are connected.
- Establish a good work procedure: lift, move and set down the load and mark out the work area in line with best industry practice.
- Only allow docking of the load and communication by signals by competent persons trained in this kind of work.
CHAPTER 2  BASIC RULES

• A single person will give instructions by way of regulatory gestures (see Appendices). The crane operator and the person controlling the operation on the ground work together.
• Do not stand under a load and respect the safety distances.
• Do not leave a load suspended from a lifting device that is not under the control of the operator (crane operator).
• Do not carry persons on an overhead crane, a suspended load or handling machinery.
• When the work is complete, store the lifting accessories in the places provided.

Handling machinery
• Only allow the handling machinery to be operated by persons authorized by their line management, who have passed a medical and who are trained to use this machinery.
• Wear the seatbelt when using the machinery if it has one.
• Use of mobile telephones is prohibited when operating handling machinery.
• Respect the safety distances from moving handling machinery.

• It is strictly forbidden to lift people up using the forks of a forklift truck or the hook of an overhead crane.
• If you need to modify or add a new load carrier, the machinery must be resubmitted for acceptance by an approved body.

2.5.5. Manual handling
Use the handling accessories and mobile work equipment available

A few guidelines:
• ask for help if you need it
• adopt the right posture when lifting a load:
  - keep your back straight
  - hold the load near to your body
  - use your leg muscles to lift the load
  - avoid twisting your body
• wear suitable gloves
As I move around, I must **KEEP MY DISTANCE FROM MOVING MACHINERY OR EQUIPMENT.**

### 2.5.6. Risks associated with moving machinery

- Trucks and machinery driving near to works
- Work near to railway lines
- Presence of forklift trucks
- Presence of overhead cranes in operation
- Moving installations (transfer, conveyor, etc.)
- Automatic equipment
- Not being able to see
- Not being seen

**5 m. minimum**
CHAPTER 3
FACTORY WORK
3.0. ACCIDENT PREVENTION

Application of the shared vigilance principles is an essential requirement for NLMK La Louvière. Everybody has a duty to ensure their own safety and that of others. In the event of serious and imminent danger, a worker must leave his workstation or a hazardous area and notify the competent line manager and/or the Internal Prevention and Safety Service (SIPPT) immediately. NLMK La Louvière is committed to ensuring that this worker does not suffer any disadvantage, unless he acts inconsiderately or commits gross misconduct.

"All workers have the right to raise the alarm and withdraw when they have reasonable grounds to think that the current situation presents a serious or imminent danger for their lives or health or for those of other people. The danger must be serious enough, more than just the risk inherent in normal performance of their work"

We have to eliminate all of the factors leading to or increasing the risk of a worker having, causing or aggravating an accident.

What are these factors?

1. Not being "fit" (e.g. being tired, having health, physical or psychological problems, taking medicines that impair alertness, etc.);
2. Not being familiar with the work required (e.g. being a new worker, doing a new job, absence of procedures, plans or diagrams, not having been given instructions, etc.);
3. Not being aware of the dangers and risks involved (e.g. because no risk analysis or site assessment has been done, etc.);
4. For certain particularly dangerous work, not having obtained the mandatory special permits (e.g. no fire permit, no permit for work on roofs, in confined spaces, on pipes, near to railway lines, no lockout certificate (securing), etc.);
5. Not being trained/authorized for certain tasks (e.g. driving or using platforms, forklift trucks, overhead cranes or vehicles (car, truck, etc.), no BA4/BA5 certificate for electrical work, wearing a harness, etc.);
6. Not using the specific preventive equipment required (e.g. marking, signs, extinguishers, barriers, cargo net, lifeline, gas detector, etc.).
7. Not wearing the right PPE (e.g. basic PPE, specific PPE for the work to be done, etc.);

8. Using faulty or unsuitable tools (e.g. using a grinder with a damaged cable, a chisel that has sharp burrs on its head, an adjustable wrench instead of a socket wrench, a sling that has not been inspected, using expired electrician’s gloves, etc.);

9. Not taking into account the risks created for others or for the environment (e.g. arc welding with no protection near to other workers, working at height without warning signs on the ground, turning energy supplies back on without authorization, not doing anything to prevent contamination of soil and surface water, etc.);

10. Not being able to call the emergency services quickly (e.g. not knowing the emergency telephone number or not having a way of calling them nearby: mobile, landline telephone, radio, intercom, etc.)

Look at everything that could create a risk situation!
Take the time to think before you act
Complete the "10 stop signs before you act" form

The "10 stop signs before you act" form must be completed before an NLMK La Louvière worker or team of workers starts work outside of a normal production workstation and for any job performed by an external worker or team of workers.

The form is only valid for a given job and for a single work day at the most.
It must be signed before work can commence.
3.1. SAFETY DEVICES

I respect all of the SAFETY DEVICES and make sure they are ACTIVE at all times.

- Follow the work instructions
- Use equipment for the operations and under the conditions for which it is intended
- Replace or secure and report any missing, faulty or deactivated safety device
- Do not force or bypass any safety device, lock or padlock
- Do not put your colleagues in danger
- Do not put yourself in danger

3.1.1. Mechanical hazards and workplace location
- Projection of objects or pressurized fluids
- Trapping between a fixed point and a moving part
- Points or reentrant angles
- Collapse of materials (silos, etc.)
- Residual energies after lockout (storage batteries, springs)
- Pressurized pipe burst, breach of other objects, etc.

3.1.2. Electrical risks:
Only personnel from the NLMK La Louvière electrical department are authorized to carry out connection work and operations on the electrical networks.

Risks at NLMK La Louvière:
- Direct contact (bare conductor) and indirect contact
- Contact with trolleys
- Presence of high voltage
- Potential energy (capacity, line capacity, etc.)
- Work near to overhead lines
- Work near to underground lines (digger, drilling, etc.)
- Use of fume hood - extensions - electrical equipment
- Welding work in a conductive environment: in a tank, on a metal floor, in a humid environment, etc.
- Use of portable electrical equipment

COMMENTS:
- 220 V portable lighting is not permitted.
- When using civil engineering machinery, cranes, etc., respect the safety distances (voltage less than 50,000 volts, D=3 meters; voltage greater than 50,000 volts, D=5 meters).
If this machinery frequently passes under high voltage lines, install a safety cover in the form of a gantry.

• To supply power to electrical equipment, in the event that double-insulated equipment cannot be used, powered by an isolation transformer and/or protected by a suitable differential circuit breaker, the maximum voltage is 24 volts. In humid areas, the maximum voltage of 24 volts must be respected. The 24 volt maximum voltage is mandatory for portable lighting equipment.

• Fit welding stations with a no-load voltage limiter (compliance with maximum voltages indicated in the General Regulations for Electrical Installations (RGIE)).

3.1.3. Risks associated with hazardous products
• Handling of toxic, harmful, irritant and corrosive products
• Hazardous fumes – dust
• Presence of asbestos, refractory ceramic fibers (RCFs)
• Mixture of incompatible products (explosion, fire)

General rules
There should be a Simplified Safety Data Sheet (SSDS) signed by the NLMK La Louvière Works Doctor for each hazardous product used on the site (by internal and contractor personnel).

This sheet must be displayed in each location where the hazardous product is loaded/unloaded, stored and/or used. **It is forbidden** for internal or external personnel to use a product for any purpose other than that indicated on the SSDS.

Requests to create and update SSDSs can be submitted to the SIPPT using the hazardous product/chemical authorization request form.

Guidelines for handling hazardous products:
• Familiarize yourself with the risks associated with the products
• Refer to the labels and SSDSs
• Equip yourself accordingly
• Wear the appropriate PPE
PPE to be worn when using hazardous products

Besides the standard PPE (hardhat, safety glasses, work clothing)
- Goggles
- Chemical protection gloves
- Chemical overalls or apron
- Rubber boots
- Skin protection cream to be applied before starting work

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosive</td>
<td>Explosives, unstable explosives, self-reactive substances and mixtures, organic peroxides</td>
</tr>
<tr>
<td>Flammable</td>
<td>Flammable gases/aerosols/liquids/solids, self-reactive substances and mixtures, pyrophoric liquids/solids, self-heating substances and mixtures, substances and mixtures that (in contact with water) emit flammable gas, organic peroxides</td>
</tr>
<tr>
<td>Oxidizing</td>
<td>Oxidizing gases, oxidizing liquids, oxidizing solids</td>
</tr>
<tr>
<td>Gas under pressure</td>
<td>Gases under pressure, compressed gases, liquefied gases, refrigerated liquefied gas, dissolved gases</td>
</tr>
<tr>
<td>Corrosive</td>
<td>Substances or mixture corrosive to metals, corrosion/skin irritation, serious damage to eyes</td>
</tr>
<tr>
<td>Toxic</td>
<td>Acute toxicity</td>
</tr>
<tr>
<td>Health hazard</td>
<td>Hazard to health (poisoning, irritation, allergy, drowsiness, dizziness)</td>
</tr>
<tr>
<td>Serious health hazard</td>
<td>Harmful to health (carcinogenic, mutagenic, reprotoxic, respiratory allergy, fatal if ingested)</td>
</tr>
<tr>
<td>Hazardous to the environment</td>
<td>Hazard for the aquatic environment (acute hazard or chronic hazard)</td>
</tr>
</tbody>
</table>
Example of simplified safety data sheet (SSDS)

**HYDROCHLORIC ACID**

**Hazard statements:**
- H290: may be corrosive to metals.
- H314: causes severe skin burns and eye damage.
- H335: may cause respiratory irritation.

**Hazard pictograms:**
- DANGER

**Hazard category:**
- 1

**Properties:**
- Highly acidic aqueous solution
- Liquid fuming in air, colorless to yellow and pungent odor.

**Authorized use(s) at La Louvière:**
Pickling agent (pickling lines 1 and 2)

**Risk:**

### Skin
- Wear protective gloves/protective clothing/eye protection/face protection.

### Eyes
- Wear a face shield or sealed safety mask.
- Carry a personal eye wash (Diphoterine).
- Provide an eye bath or safety shower nearby.

### Ingestion
- Do not eat, drink or smoke during use.
- Do not give anything to drink. Report to the infirmary.

### Inhalation
- Wear a protective respirator mask (combination filter type B/E/P2).

### Fire
- Use the extinguishing means appropriate to the local conditions and the neighboring environment. Cool the containers by spraying with water. Ventilate the area.

### Storage
- Keep only in the original sealed container.

### Spillage
- Do not allow the product to get into the drains, water courses or the soil.

### Internal factory
- 900

**FIRST AID PROCEDURES**

**EMERGENCY**

**Transport**
- Hazard code: 80
- UN number: 1789
- Packaging group: 1
- ADR class: 8

**Emergency contact numbers:**
- Factory: 064/ 27 2 900 (infirmary)
- Head of Internal Prevention and Safety
- Works Doctor
- Transport Advisor
- Environ. Advisor

**Name and signature:**
- Yves Collet
- Anne Thote
- Nino del Rizzo
- Pierre Gilson

**Updated on:** 05/05/2015

**Printed on:** 23/11/2016 07:52

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Know how to read labels. By reading the label, you are already protecting yourself!

**Important:** if there is no label, it does not mean there is no danger!
3.1.4. Risks associated with specific work

- Earthwork or underground work
- Work in gutters, drains, cellars
- Isolated workers (presence control, means of calling, etc.)
- Work in humid environments
- Work near to the canal (risk of drowning)
- Work in confined environments
- Work near to an explosive zone (tools, fire permits)

Earthwork and openings

- Earthwork:
  - Get utilities checked before work commences, namely power cable raceways, pressurized gas pipes, drains, etc.
  - Calculate, perform and protect earthwork so as to prevent any caving in or falls of material nearby, in line with regulations, standards and best practices (banking, shielding, etc.).
  - Install permanent protection in the form of railings or appropriate signs over 2 meters away.

If you are required to work less than 5 meters from Fluxys or Air Liquide pipes, Elia underground cables, etc., you must contact these companies 15 days before the works, to define with them the preventive measures to put in place.
• Comments for specific work such as:
  - Work near to high voltage power lines or cables, or pipes under a pressure of 15 bar or more.
  - Work exposing workers to a risk of drowning.
  - Underground earthwork and tunneling work.
  - Work involving digging trenches or wells more than 1.2 meters deep or work in these existing holes, etc.
If this work takes longer than 5 working days, or 30 days and more than 20 people, or more than 500 man-days. The officer responsible for surveillance (SPF) must be notified at least 15 days before the works.
• Openings in the ground and/or in a floor:
  Protect with a regulatory guardrail or block off effectively (strength, rigidity, fastening) and light any work floor, opening in a floor, tanker, wall, material store, stairwell, etc. to prevent people or materials falling in, at all times until the end of the works.

3.1.5. Risks associated with the work environment
• Loud noises (communication, perception of signals, etc.)
• Poor lighting, night work
• Radiation from heat sources nearby
• Contact with high or low temperature objects
• Presence of gas – vapor – nitrogen in the zone
• Narrow, obstructed surface, no protection
• Visibility problems, blind spot

3.1.6. Climate risks
• Strong winds (use of cranes, etc.)
• Storm, lightning, frost, snow

3.1.7. Risks associated with radiation
• Ionizing:
  - X-ray densitometer (2 continuous hot rolling mills, 2 pickling lines, 2 cold rolling mills)
  - Radioactive densitometer (Quarto output continuous hot rolling mill)
• Lasers (welding)
  - Pickling line welding machine
  - Detection and positioning lasers

Ionizing radiation
Ionizing radiation devices are used at NLMK La Louvière.
The following rules should be followed:

- follow the instructions given by management closely.
- wear a dosimeter when accessing classified areas (high-risk zone).

Only trained, authorized persons can carry out work on sources of ionizing radiation.

In the event of an accident:

- Dial 900 or 064/27 29 00
- Mark out the zone and prevent access
- Follow any instructions received

Precise instructions for operating and using the installations, the normal precautions to take and the steps to take in the event of an accident are clearly displayed.

Rules for using the dosimeter

Anybody who needs to carry out work on equipment that emits ionizing radiation must wear a dosimeter. The dosimeter must be:

- Carried in a pocket or underwear at chest height for the whole job.
- Handled carefully. While they are not being worn, dosimeters cannot be stored in a high-risk area.
- Replaced each month.

If you suspect irradiation (accident), contact the Head of SIPPT who will explain the measures to be taken.

3.1.8. Risks associated with fire/explosion

- Flammable materials near to the works
- Hot spots (cutting, grinding, welding, etc.)
- Electrical batteries in the zone (release of H₂)
- Handling, storage of flammable products
- Pipe carrying natural gas, O₂, etc. nearby

Gas hazards

There is a risk of asphyxiation, intoxication and combustion

Where are you exposed?

- Confined spaces:
  - tank and tanker welding and cleaning.
  - furnace repair.
  - inert storage inspection.
  - entry into unventilated silos.
- Low point trenches:
  - search for leaks, inspection visits.
  - cellar, drains.
- Gas error:
  - nitrogen instead of air for ventilation.
  - nitrogen instead of air in breathing apparatus.
- Liquid gas: liquid nitrogen, CO₂, butane, etc.
The gases most commonly found at NLMK La Louvière are:

- Nitrogen (N₂) and inert gases
- Carbon monoxide (CO)
- Carbon dioxide (CO₂)
- Ammonia (NH₃)
- Natural gas (CH₄+x)
- Propane (C₃H₈)
- Butane (C₄H₁₀)
- Acetylene (C₂H₂)
- Oxygen (O₂)

All of the properties of these gases are given in the appendices.

Fire hazard:
To create a fire, three ingredients are necessary: a fuel, an oxidizing agent and an energy source.

Fuels
There are three main categories of fuel:

- Solid fuels (wood, paper, rags, coal, etc.)
- Liquid fuels (petrol, diesel, etc.)
- Gases (butane, propane, natural gas, etc.)

Oxidizing agent
Chemical element that when combined with a fuel enables combustion (in the presence of heat).

The ambient air containing oxygen is an oxidizing agent.

Average composition of air:
- 78% nitrogen
- 21% oxygen
- 1% noble gases (argon, krypton, neon).

Energy source
This is the flame or the heat source that is brought close to the fuel and the oxidizing agent; it is a heat energy.

Fire triangle
1. The fuel
2. The oxidizing agent
3. The activation source
**Risk of explosion**

An explosion can occur when flammable substances in gas, vapor, mist or dust form mix with air, under atmospheric conditions, in which, after ignition, combustion spreads to the whole of the unburned mixture.

The 6 conditions shown in the diagram below must be met to create an explosion.

**Concentration: Limit for gas volume in air**

- **Hydrogen**: 4% - 75%
- **Acetylene**: 2.5% - 81%
- **Natural gas**: 5% - 15%
- **Propane**: 2.2% - 9.5%
- **Butane**: 1.8% - 8.4%
- **Benzene**: 1.4% - 8%

*Note: the term "gas" could be replaced by "dust, mist, etc.".*

**Preventing explosions**

Follow the safety procedures defined at site launch (for contractors) and internally follow the procedures written by line management to carry out the work to be done.

- Avoid ignition sources.
- Avoid leaks of flammable products.
- Respect the safety devices (ventilation of rooms, torch non-return valve).
- Exercise caution when it comes to storage tanks for fuel and petrol, and empty drums that used to contain a flammable or unknown product.
Leak detection

- By the odor, for example for natural gas (CH4), acetylene, etc.
- Using fixed detectors installed in high-risk zones.
- Portable detectors are found in high-risk installations. The protective equipment worn is to be adapted and/or supplemented according to the risks.

If a gas leak is detected:

- Disconnect the gas supply
- Stop the leak before notifying line management and the Surveillance Department
- Distance yourself quickly, away from any risks, dial 900, line management and the Surveillance Department
- Do not produce a flame

3.1.9. Cylinder colors

Basic colors

<table>
<thead>
<tr>
<th>Type of gas</th>
<th>Old</th>
<th>New (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen O₂</td>
<td>White</td>
<td>RAL 9010 White</td>
</tr>
<tr>
<td>Acetylene C₂H₂</td>
<td>Red</td>
<td>RAL 3009 Brown</td>
</tr>
<tr>
<td>Argon Ar</td>
<td>Yellow/White</td>
<td>RAL 6001 Dark green</td>
</tr>
<tr>
<td>Nitrogen N₂</td>
<td>Black</td>
<td>RAL 9005 Black</td>
</tr>
<tr>
<td>Carbon dioxide CO₂</td>
<td>Grey</td>
<td>RAL 7037 Grey</td>
</tr>
<tr>
<td>Hydrogen H₂</td>
<td>Red/Green</td>
<td>RAL 3000 Red</td>
</tr>
<tr>
<td>Helium He</td>
<td>Brown</td>
<td>RAL 8008 Brown</td>
</tr>
<tr>
<td>Air</td>
<td>Black/White</td>
<td>RAL 6018 Bright green</td>
</tr>
<tr>
<td>Synthetic air</td>
<td>Black</td>
<td>RAL 6018 Bright green</td>
</tr>
<tr>
<td></td>
<td>Grey</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Black/White</td>
<td></td>
</tr>
</tbody>
</table>
3.1.10. Pipe colors

<table>
<thead>
<tr>
<th>Substance</th>
<th>Color</th>
<th>RAL Code</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable forming gas N\textsubscript{2}/H\textsubscript{2} (H\textsubscript{2}=5%)</td>
<td>Black/Red</td>
<td>RAL 3000</td>
<td>Several</td>
</tr>
<tr>
<td>Nitrous oxide N\textsubscript{2}O</td>
<td>Blue</td>
<td>RAL 5010</td>
<td>Blue</td>
</tr>
<tr>
<td>Methane CH\textsubscript{4}</td>
<td>Orange/Blue</td>
<td>RAL 3000</td>
<td>Red</td>
</tr>
<tr>
<td>Ammonia NH\textsubscript{3}</td>
<td>Blue/White</td>
<td>RAL 1018</td>
<td>Yellow</td>
</tr>
<tr>
<td>Chlorine Cl\textsubscript{2}</td>
<td>Green</td>
<td>RAL 1018</td>
<td>Yellow</td>
</tr>
<tr>
<td>Hydrogen chloride HCl</td>
<td>Grey</td>
<td>RAL 1018</td>
<td>Yellow</td>
</tr>
<tr>
<td>Water</td>
<td>Green</td>
<td>RAL 6010</td>
<td></td>
</tr>
<tr>
<td>Flammable/hydraulic liquids</td>
<td>Brown</td>
<td>RAL 8001</td>
<td></td>
</tr>
<tr>
<td>Acids and Bases</td>
<td>Purple</td>
<td>RAL 4001</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>Yellow</td>
<td>RAL 1004</td>
<td></td>
</tr>
</tbody>
</table>

PLEASE NOTE: at NLMK La Louvière, oxygen pipes are painted blue like the compressed air.
3.1.11. Oxy-fuel or arc welding or cutting

The 4 rules of conduct

Reminder: on site, fire permits are mandatory.

1- Have a well prepared work site:
   - Make sure there are alarms and fire-fighting equipment appropriate to the risks nearby
   - Remove or protect any oxidizing substance or material that is likely to cause a fire or explosion
   - Warn anybody who could be exposed at the beginning and end of the job
   - Plan an inspection of the work site after the work has been done and schedule monitoring for at least two hours to check that no fire risk remains
   - Mark out the work zone and if necessary install protective screens
   - Specific to oxy-fuel welding:
     - Place the cylinders more than 5 meters from the cutting or welding site
     - Secure the cylinders in an upright position or leaning slightly on and attached to a trolley
     - Ventilate the work zone to evacuate the welding fumes
     - Protect the cylinders against heat sources
   - Specific to arc welding:
     - Ensure the work zone is well ventilated and/or ensure that welding fumes are evacuated (suction system)
     - In the event of work being done in an "increased risk" environment (defined according to the level of humidity and the worker's position), use a welding station with limited no-load voltage

2- Use compliant equipment

   - Specific to oxy-fuel welding:
     - Regularly check the condition of the torch, the nozzles, the valves, the adjustment components and the pipes
     - Protect the pipes and replace them when they are damaged
     - Check that the non-return devices are present on the gas and oxygen pipes and that they are in good condition
     - Regularly change the seals, clamps and rings on the pipe connection points
     - Regularly check the equipment seal using soapy water
     - Do not join two pipes with a connector made of copper or containing copper
   - Specific to arc welding:
     - Use welding transformers of which the no-load voltage is not high
- Ensure that electrode holders are in good condition and properly insulated
- Use electrode holder and ground cables with the same cross-section
- Use a power cable with a large enough cross-section that is as short as possible (for mobile stations)
- Regularly check the condition of the cables, plugs, pins and terminals

3- Use welding equipment correctly:
   - Specific to oxy-fuel welding:
     - Never use the flame to look for a gas leak (leak detection must be done using soapy water or a foaming product)
     - Never use the flame to deice a pressure reducer
     - Do not take cylinders into cavities and similar
     - Handle gas cylinders with care and protect them against heat. Acetylene poses a risk of explosion, even without adduction of air or oxygen
     - Any acetylene cylinder that has been lying down cannot be used within one hour
     - During use, do not tilt the cylinder by more than 30°
     - Do not use the cylinder as an anvil, wedge or support
     - Only store and use the quantities of gas that are strictly necessary
     - Never project oxygen onto fats (may spontaneously catch fire)
   - In the event of an incident, start by shutting off the gas supply
   - Specific to arc welding:
     - Ground the welding station correctly using an appropriate plug and clamp
     - Apply the earth clamp directly to the part to be welded and not just anywhere on a casing or frame
     - Pay particular attention to keeping your gloves dry when working on metallic structures under construction (contacts), in caissons or in damp rooms
     - Use open contact connections and appropriate parts (pins and terminals)
     - Do not weld through a zinc layer or through a protective layer (of grease)
     - If there is oil or grease on the welding point, it must be removed first

4- Wear suitable personal protection:
   - Wear an appropriate welder’s mask or helmet
   - Wear clothing with low combustibility
   - If there is a risk of projection, wear fireproofed clothing
   - Ensure that your clothing is clean
   - Use personal protection against burns and light radiation (gloves, apron, gaiters, etc.)
   - Specific to arc welding:
     - Use respiratory protection devices if suction cannot be used to evacuate the fumes
**CHAPTER 3  FACTORY WORK**

3.1.12. Fixed and portable machines and hand tools

Read the machine’s user manual. Wear the necessary PPE.

**Fixed machines (drill press, grinding bench):**

- Do not work on a machine of which the protection devices are missing or the adjustments are inappropriate
- Do not short-circuit the safety devices
- Do not clean or lubricate parts while they are moving
- Keep access to emergency stop buttons and other safety devices clear
- Use a hook, brush or magnet to remove filings and shavings

**Portable machines (drills, angle grinders):**

- Immobilize the parts to be machined
- Do not use a machine missing its protection devices
- Check the condition of the power cables, extensions, connections and plugs
- On angle grinders, use a disc in good condition, intended for the number of turns indicated on the machine and the material to be machined
- Wear a sealed mask or face shield when using an angle grinder.

**Oxy-fuel and arc welding in confined spaces.**

Welding in confined spaces leads to the emergence of additional risks. This type of welding is only authorized after a special work permit has been issued for confined spaces:

- the measures relating to fire risk, harmful substances and asphyxiation
- the measures to be taken to work safely
- the duration of work authorized and the frequency of inspections
- the person responsible for monitoring
- the types of protective equipment required

- Wear hearing protection (most welding techniques exceed 85 dB(A))
- Assistant personnel must be kitted out in the same way
Hand tools:
• Pointed tools: scribers, drill bits, etc.
• Non-explosive percussion tools: chisels, punches, etc.
• Striking tools: mallets, hammers, etc.
• Tightening tools: wrenches, screwdrivers, etc.

General:
• Do not use tools that are in a state of disrepair (e.g. broken handle, chisels that have not been deburred)
• Use tools for the purpose they are designed (e.g. do not strike a screwdriver, do not strike a wrench)
• Do not leave tools in an unstable position (e.g. on a ladder)
• Do not leave tools in your pocket (e.g. pointed or sharp tools)
• Check the tools before use. Any faulty tools must be replaced or sent for repair
• Regularly check the setting of tools in their handles
• Protect pointed tools
• Carefully put tools away after use
• Use explosion-proof tools and equipment
• Use insulated tools when working on live equipment.
CPE - Collective Protection Equipment:
• Mark out the work zone and install signs
• Put up protective screens if necessary

PPE - Personal Protection Equipment:
• Wear safety masks
• Wear gloves (avoid pricks, cuts and impacts) and a hardhat (prevent tools falling from above)
• Wear hearing protection

3.2. LOCKOUT

Rule no. 7

I carefully follow the LOCKOUT PROCEDURES before carrying out any work on a piece of equipment.

3.2.1 Lockout

Lockout is considered to be all of the precautions taken before starting a job on a system or piece of equipment comprising moving parts, pipes, tanks, etc., the energy of which can cause accidents.

The aim of lockout is to eliminate the risks and at all times, intentionally or unintentionally, prevent:
• start-up of a system, work equipment or a machine;
• unexpected movement of a mechanical, hydraulic or pneumatic part;
• the presence of electricity;
• the release of residual energy (static electricity, capacitor discharge, release of springs, etc.);
• projection of liquids (chemical burns);
• projection of vapor or boiling water (thermal burns);
• jets of compressed air, liquid or gas, hydraulic oil;
• harmful radiation;
• emission of hazardous substances (intoxication);
• projection or hazardous movement of masses of loose materials;
• fire or explosion by preventing the flow of flammable gases or liquids;
• etc.

There are 3 essential requirements for lockout:

**AN OPERATOR / A PADLOCK / A KEY** *

Each worker uses his own personal padlock to lock a box containing, by way of an intermediate system, the lockout key for the component.

**NO WORK WITHOUT THE "GREEN FORM"**

The "Green form" is mandatory for all work (even without lockout).

**NO WORK WITHOUT PRIOR STUDY**

Establishment of the list of components to be locked out is always the result of a study conducted by at least 2 authorized signatories.

* Padlocking applies in zones where the method has been deployed.
Lockout/lockout removal consists of 7 steps in the following order:

1. Coordinate/communicate
   Any work must first be discussed between the job manager and the officer responsible for operation of the work equipment in question. The aim is to let everybody involved know that work is going to be carried out on the machine. It is also a chance to think about the potential risks associated with the work: the nature, the estimated work time and the equipment to be locked out.

2. Disconnection of energies and fluids

3. Lockout/Isolation of energy sources and fluids
   a. Rinsing/decontamination
   b. Neutralization
   c. Ventilation*

4. Verification

5. Coordination/Communication

6. Notification

7. Immobilization

8. Marking out

* in confined spaces
Before locking out a machine or an installation, come to an agreement with the operator before removing it from service. In the event of a dispute, contact the operations manager for the zone in question. A "Green form" will always be written and will be used to transmit information between subsequent teams.

2. Disconnect and bleed energies and fluids
It is mandatory to disconnect and bleed all of the energy sources and fluids to the work equipment on which or near to which a job proves necessary.

It is essential that any disconnection is done:
- by direct action on the power circuit
- on the energy and/or fluid in question
- an emergency stop and disconnection of a control circuit cannot be considered as a correctly neutralized energy source separation (the power supply actually needs to be disconnected)

Please note: Remember to bleed the residual energies and hazardous substances that have built up in the pipes and tanks, electrical capacitors, and hydraulic and pneumatic accumulators.

3. Lock out/isolate the energy sources and fluids
After disconnecting the energy sources and fluids, the components of the work equipment have to be neutralized/locked out in a secure position.

Examples: opening of an electrical circuit, placement of a plug on the end of the "fluid" line, opening of a bleed valve, closure with a solid plate for a fluid, etc.

Lockout must be ensured by effective means, which may include:
- Single key padlock + locking clip enabling placement of several padlocks (e.g. 1 mechanical engineer, 1 electrical engineer, 1 pipe technician, etc.);
- Lock;
- Removal of a mechanical link (belt, chain, coupling, etc.);
- Placement of a solid plate (diaphragm on a pipe);
- Line end plug (blind flange/plate or screw-on cap).

N.B.: If there is any doubt surrounding application of the lockout procedure or if it is not possible to place your locking clip, speak to your manager before starting the work.

If a job is done by several teams one after the other, make sure that your colleague places his padlock before you remove yours.
4. Check disconnections
Mistakes can happen. Experienced people have been injured in the past when errors have been made securing installations. It is extremely important, before working on the equipment, that disconnections/securing are checked to make sure that nothing has been forgotten.
A lockout inspection must be performed before any work can be done on a piece of equipment (e.g. energy absence measurement, start-up test or visual check of the disconnection/isolation).

5. Notify
After checking the effectiveness of the lockout and before starting work, a label should be affixed with the warning triangle and the words "DO NOT USE" on it.

This label belongs to a NAMED PERSON and only its owner can remove it.
It is strictly forbidden to remove a label without authorization as there is a risk of endangering the lives of others.
Note: If the padlock belongs to a named person, the label is surplus to requirements.

6. Immobilize/mechanically block
Untimely movements are always possible. All movements should therefore be blocked and the means used should be deemed strong enough. Existing blocks must also be used (e.g. clamping of moving parts, stays, wedges, struts, etc.)

7. Mark out/put up warning signs
To prevent unauthorized people from entering a risk zone, a perimeter should be clearly marked out using appropriate means (two-color tape, marking cones, mesh, etc.)

For work in confined spaces (cellars, drains, tanks, reservoirs, silos, etc.), there are three further stages depending on the circumstances:

1. Rinsing/decontamination
After physical lockout, some equipment such as reservoirs, tanks, pipes, filters, pumps and valves must be rinsed to remove any residues of hazardous substances.
CHAPTER 3

FACTORY WORK

2. Neutralization
To eliminate residual risks (chemical burns, harmful emissions, etc.), neutralization will be done after rinsing depending on the nature of the products that have been in the installation (bring the pH to between 6 and 8).

3. Ventilation*
Ventilation is a preliminary phase of the job in equipment classified as a "confined space" in which workers will have access to all of the PPE appropriate to the circumstances. The PPE will be determined based on all of the specific atmospheric measurements that are required (oxygen content check, concentration of hazardous substances, etc.).

* if necessary, mechanical ventilation will be maintained for the duration of the work

When the work is complete on the equipment, machine or installation, the lockout must be removed.

3.2.2 Lockout removal
Lockout removal involves all of the measures for returning a piece of equipment, installation or machine that has previously been locked out to an operational state, while ensuring worker safety. It is a return to normal. It is a particularly delicate operation. It is also the stage when the green form is retracted.

Lockout is removed by following the 7 lockout steps in reverse order.

Please note:
- Remove any additional signs put up before the job;
- Remember to remove the blocking components used for immobilization (to prevent restart incidents or accidents);
- Remove blank plates and close bleed valves, etc.;
- Individual "DO NOT USE" stickers must be removed;
- Remove your padlock from the locking clip;
- The worker who removes his padlock last must tell the manager of the zone in question that the equipment can be returned to service (complete, sign the "green form" and hand it to the relevant NLMK La Louvière manager).
3.3. PERMITS

**RULE NO. 8**

If I am doing specific work (confined space, pipes, roof, fire, gas zone, etc.), I get a SPECIAL PERMIT and I must apply all of the APPROPRIATE SAFETY MEASURES.

Issue of a specific permit enables the risk analysis to be completed and determines the preventive measures started when a work authorization is written in the form of a "Green form" (for lockout) and/or "Site launch" and the "10 stop signs before you act".

Obtaining these work permits, prior to the start of the works to which they relate, is always mandatory, for both NLMK La Louvière personnel and external companies. The permits can only be issued by the Manager of the site where the work is to be performed.

NLMK La Louvière acknowledges the following permits:

- **Fire permit**: to prevent fire and explosion risk when carrying out work with a naked flame, arcing, generation of sparks or hot spots (welding, cutting, brazing, pickling, heating, defrosting, etc.)

- **Permit for work in confined spaces**: fully or partially enclosed space (building, structure, equipment, installation, etc.) that was not designed and built to be occupied permanently by people and within which the atmosphere may pose risks for the health and safety of the persons who enter it.

- **Permit to work on pipes**: pipes that contain or contained hazardous liquid or gaseous products.

- **Roof access permit**: to prevent the risk of falls or falling objects during access to, movement on or work on roofs.

- **Permit to work on railway lines**: to prevent the risk of collision with a rail convoy during work on or near to railway lines (distance ≤ 2 m from the rail or ≤ 5 m above the line).
3.4. GUIDELINES FOR EXTERNAL COMPANIES

3.4.1. Site launch meeting

A site launch meeting must be held, before any work is carried out, for the personnel of external companies (contractors) on the site. This site launch meeting is only valid if attended by, and if a report is signed by, an NLMK La Louvière manager for the zone where the work needs to be done and the person responsible for the personnel of the external company.

This site launch meeting is intended to assess the risks of the site in question in order to:

**Define:**
- the risks generated by the external companies (contractors and subcontractors)
- the specific risks of NLMK La Louvière in the work zone
- the risks moving around the site
- the general safety measures on the site
- the safety measures to be taken on the work site

**Enable:**

coordination of the site and implementation of specific measures to respond to the risks defined above.

Example: the installation lockout documents (green form and if necessary the permits).

**Check:**

(before, during and at the end of the site) that the contracting company complies with legislation (social, wellbeing at work rules, etc.), follows procedures and respects the lockouts established when the site was launched, and leaves the site clean and free from hazards after the works.

**Removes:**

any contracting companies (and subcontractors) that do not comply with legislation or follow the rules established by NLMK La Louvière.

**Interrupt:**

in the field, any site where it can be seen that workers are not complying with or are not familiar with the content of the site launch report that concerns them.
3.4.2. Additional guidelines for external companies
It is the responsibility of the contracting company to submit to our Surveillance Department 3 duly completed documents:
• the personnel access request
• the inventory record for equipment taken onto the site
• the purchase order number

Site vehicles
Any vehicle entering the NLMK La Louvière site must:
• be declared to the Surveillance Department
• be in good technical condition and satisfy legal requirements
• the driver of the vehicle must have in his possession a validated driver's license in his own name and required according to the Highway Code
• have civil liability insurance cover in accordance with the law
• the contractor, in the event of work on roadways, has an obligation to respect the regulatory provisions
• the contractor has an obligation to take measures to prevent damage to the road network by machinery
3.5. WORK AT HEIGHT

Rule no. 9

When carrying out WORK AT HEIGHT, I always use APPROPRIATE PROTECTION.

3.5.1. Risks associated with work at height or above a hazardous zone

- Access to overhead cranes and crane runways
- Openings in the floor
- Work on superimposed planes
- Work on roofs/at height (permit)
- Work with ladders, scaffolding, platforms, etc.
- Zone with parts below (stairs, dock, etc.)
- Work above reinforced concrete structures, tanks, reservoirs, hazardous equipment, etc.
- Work on wagons or trailers

3.5.2. Before work commences:

- Make sure that the worker is authorized for work at height
- You must call upon the manager of the relevant department who will provide information on normal accessibility and the danger zones and who may write the work procedure.
3.5.3. During the work:
• As required, place a lookout on the ground who will signal any danger and move anybody who wants to enter the prohibited area away.
• Do not let anybody work on their own on a roof or chimney.
• Make sure that the equipment, materials and tools on the roof cannot fall or fly off and injure personnel or damage installations.

3.5.4. Use of harnesses
• Personnel who need to use a safety harness must have been given the necessary information and training.
• In the platform, users must be attached to the lowest point possible in the platform by a safety strap that is as short as possible.
• Safety harnesses must be inspected annually by an approved body (SECT) and whenever a harness has arrested somebody's fall.

3.5.5. Use of a forklift truck with platform
Forklift trucks that are used to lift up personnel must have a platform designed for this purpose and the assembly (truck and platform) must be inspected each quarter by an approved body (SECT). The inspection report...
will be made available to the NLMK La Louvière Surveillance Department and the SIPPT at all times.

It is also necessary to:

- have the appropriate permit
- have a flashing light operating at all times on the machinery during use with personnel
- prevent movement in high position with personnel on the platform
- fit a plate on the machinery that indicates the usage conditions

With regard to work platforms, baskets or similar devices suspended from a crane, such equipment can only be used in exceptional circumstances for lifting personnel, and only if it is impossible or risky to lift up personnel using equipment designed for this purpose (scissor lifts, platforms with telescopic arms, etc.).

It is forbidden to suspend a platform from an overhead crane.

3.5.6. Ladders

Ladders are a means of access. They can only be used for work if the fall risk level is low and if they will be used for a short period of time.
• Only use ladders that are in good condition and inspected regularly for a competent person.
  (e.g. non-slippery rungs, presence of non-slip shoes on the ends, chocks at the foot of the ladder, etc.)
• Install ladders on stable ground, at the required angle, exceeding the access level by at least one meter, with the covering provided in the case of extension ladders and with a link in the case of double ladders and fastened if they have more than 25 rungs.
• They should be installed in locations where there is no risk (power lines, access door, etc.).

3.5.7. Scaffolding
The employer designates a competent person who has been given training to erect and take down scaffolding. The competent person is also responsible for producing and adapting the erection, disassembly and transformation plan. This person must have the manufacturer's instructions and the strength and stability calculation document. An erection plan and a user manual must be made available to you.
If any changes are made, a strength calculation must be performed by a person with the knowledge required to do these calculations.

Technical requirements concerning the stability, access and safety of scaffolding:
• It is erected in such a way as to prevent, during its use, movement of any of its constituent parts in relation to the assembly
• It is erected in such a way as to withstand the forces to which it is subjected and to withstand the stresses resulting from atmospheric conditions, in particular the effects of wind
• It is anchored or lashed to any point with sufficient strength or protected against any risk of slipping or overturning by any means of equivalent effectiveness
• There can be no hazardous gap between the edges of the boards and the structure against which the scaffolded is erected
• Safe means of access in sufficient number are laid out between the different boards of the scaffolding
The employer using the scaffolding remains, at all times during its use, compliant with the provisions above, ensuring that its workers do not have access to the parts of the scaffolding that are not ready for use.
The competent person, appointed by the employer using (erecting, dismantling) a scaffold, is responsible for the following tasks:
• Ensure application of the preventive measures relating to falls or falling objects
3.6. I AM COMPLETELY TRANSPARENT WHEN IT COMES TO SHARING ALL THE FACTS, INFORMATION AND CIRCUMSTANCES REGARDING AN INCIDENT

RULE NO. 10

I am completely transparent when it comes to SHARING all the FACTS, INFORMATION and CIRCUMSTANCES regarding an incident.

If we want to achieve Excellence when it comes to safety and the environment, it is essential for everybody to share the facts, information and circumstances regarding any incident or accident, with no interpretation or distortion. This enables the actual causes to be detected and corrective and preventive measures to be taken to prevent recurrence of the incident/accident.

It is essential that everybody, whatever their level, puts forward proposals and opinions to the competent persons with the aim of improving safety, preventing accidents, reducing pollution and meeting our obligations in relation to Safety and the Environment.

Obligations:

With regard to use of the scaffolding, workers who have to access (work on) a scaffold must be given appropriate training enabling them to acquire the knowledge and skills they need for this work. Only workers who have acquired this knowledge and these skills can work on scaffolding.
CHAPTER 4  ENVIRONMENT
4.1 THE 8 GOLDEN ENVIRONMENT RULES

An environmental management system.

For the NLMK Group, respect for the Environment is a priority just as Safety is. The Golden Environment Rules apply to everybody on the site: workers, visitors, drivers, delivery drivers and personnel of external companies.

Compliance with the requirements of standard ISO 14001 helps us to improve our environmental performance while having a positive impact on our results.

Rule no.1
I help to keep MY WORK ZONE CLEAN AND TIDY.

Rule no.2
I comply with sorting rules: I SORT my waste and use the APPROPRIATE BINS.

Rule no.3
I make sure that I LIMIT environmental POLLUTION as much as possible.

Rule no.4
I SAVE resources, water and energy.

Rule no.5
I STORE hazardous products or pollutants OVER BASINS, I do not use their empty containers for other uses and I take them to the DESIGNATED COLLECTION POINTS.

Rule no.6
I MAINTAIN all of the environmental PROTECTION DEVICES and environmental parameter measuring devices in good working order.

Rule no.7
In the event of an incident, I IMMEDIATELY FOLLOW THE EMERGENCY PROCEDURE and use the spill kits correctly.

Rule no.8
I am completely transparent when it comes to SHARING all the FACTS, INFORMATION and CIRCUMSTANCES regarding an incident.
4.2. I HELP TO KEEP MY WORK ZONE CLEAN AND TIDY

Each internal and external person and team working on the La Louvière site does their bit for the 5S approach.

This approach consists of 5 stages:

1 – Sort
2 – Set in order
3 – Shine
4 – Standardize
5 – Sustain

- The first stage involves getting rid of anything that is in the way in the work space or site.
- Put away anything that is needed for the work and determine the best place for it so that equipment can be found quickly: "A place for everything and everything in its place"
- Clean and identify the sources of dirt so they can be remedied and keep the work space clean and free from hazards for workers and the environment.
Site conduct and cleanliness

The sites and site installations of external companies must be clearly demarcated. Like any work space, these zones must be kept in order and cleaned during and at the end of the work (do not forget rags, packaging, waste, etc.).

In general, weekly cleaning at the expense of the contractor with removal of waste and/or materials is mandatory.

Reminders:
- it is forbidden to burn waste within the factory
- it is forbidden to place waste in the factory's bins unless agreed in writing in advance (at site launch for external companies)
- it is forbidden to dispose of any liquid or solid substances in the factory's gutters and/or drains
- it is forbidden to leave equipment lying around

Establish a system that enables regular monitoring of actions that guarantee the tidiness and cleanliness of the work space (checklist, cleaning schedule and regular tidying, etc.)

Aim for continuous improvement by eliminating any recurrent nonconformities and putting in place appropriate material and organizational means.

General requirements for health - safety - environment in the workplace
The contractor will ensure that all regulations on the subject are complied with and will assume full responsibility for this. In this respect, in the event that all of these measures are not applied during or at the end of the works, NLMK La Louvière will dispose of any waste and systematically charge the costs to the company. If several contractors have done work on the same site, the charges will be divided between these companies pro rata to the value of the company’s undertaking.

The Environment, everyone’s concern
We all have an interest in the Environment and we can all do our bit.
Workers, external companies, visitors… whoever we are, if we spot some stray waste or a risk of air, water or soil contamination, it is our duty to do something immediately if we can and, in any case, to report it to the competent persons.

4.3. I COMPLY WITH SORTING RULES: I SORT MY WASTE AND USE THE APPROPRIATE BINS
Sort better! How do we sort? It is up to everyone to follow

RULE NO 2
I comply with sorting rules: I SORT my waste and use the APPROPRIATE BINS

NLMK La Louvière's internal waste sorting rules.

A bin for each kind of waste
These special bins are collected and emptied regularly into containers that are then disposed of through the approved channels.

The bins will be emptied before they overflow.

If I notice that a bin is full, I do not put anything else in it and I notify the competent person to get it emptied.

If the amount of waste to be disposed of exceeds the bin’s remaining capacity, I notify the competent person so that appropriate measures can be taken.

Bins should not overflow:

Note: A small amount of waste in the wrong bin can lead to additional costs for sorting or disposal, not to mention the increased safety risks for the people responsible for sorting waste.

<table>
<thead>
<tr>
<th>Bin/Container</th>
<th>Waste to be disposed of</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIW* Household waste</td>
<td></td>
</tr>
<tr>
<td>Dirty rags</td>
<td></td>
</tr>
<tr>
<td>Clean wood</td>
<td></td>
</tr>
<tr>
<td>PMC</td>
<td></td>
</tr>
<tr>
<td>Clean cardboard and paper</td>
<td></td>
</tr>
</tbody>
</table>

*Ordinary Industrial Waste
4.4. I MAKE SURE THAT I LIMIT ENVIRONMENTAL POLLUTON AS MUCH AS POSSIBLE

RULE NO. 3

I make sure that I LIMIT environmental POLLUTION as much as possible

What is meant by environmental pollution?

Bin/Container

Waste to be disposed of

- Fluorescent 'neon' tubes
- "Energy saving" compact fluorescent bulbs

- Ordinary Industrial Waste

In offices

- Bulbs
- Batteries
- Clean paper
- Cartridges
- Fluorescent 'neon' tubes
- "Energy saving" compact fluorescent bulbs
- Ordinary Industrial Waste
Any activity is likely to generate potential pollution for the air, water or soil or to generate nuisances for people. Everybody’s behavior helps to prevent pollution and nuisances.

A few examples:

For the air: Any form of emanation, odor, gas, vapor, fumes, dust or noise.

What to do?

- Always use the urinals and WCs provided for personnel
- Use the suction systems where provided
- Close doors and shutters
- Regularly clean dusty areas

For water: Any flow of pollutant liquid or soluble or powdered substance that can get into the drains and sewers.

For the soil: Any direct contact between the pollutant product in liquid, soiled solid and/or soluble solid form with the bare soil.

Best practice

- Follow procedures for transferring (loading/unloading of loose products) and storage
- Follow the instructions in the Simplified SDSs
- Place collecting pans under the drums
- Keep containers closed (even empty ones), replace caps or lids as soon as possible
- Make sure that the neutralization means are always available in the zones where they may be needed
- Prevent pollutant products from running into the drains
- Clean floors and dispose of waste

What should I do if there has been a spill?

If hazardous liquids are spilled on the floor or down the drain, follow the "Spillage" procedure:

- Refer to the Simplified SDS
- Put on the appropriate PPE
- Reduce any possibility of transfer to the drains/water system (block off drains, divert the leak, etc.)
- Stop and reduce the flow and contain the spill using absorbents
- Notify the competent person so that appropriate measures can be taken

In the event of air, water or soil contamination that cannot be handled in-house - Call 900 from an internal telephone or 064/272 900 from a mobile.
4.5. I SAVE RESOURCES, WATER AND ENERGY

- I switch off any devices that use electricity when they are not in use.
- I close valves and switches as soon as possible.
- I look for leaks (compressed air, water, gas, etc.) and electricity losses.
- I check the compliance of the installations to avoid energy losses (repair or report faulty valves and taps).
- I limit the temperature in the offices (turn down the heating or turn off air-conditioning when nobody is there).
- I turn off lights and heating when I am out of the office.
- I close doors and windows if I am absent.
- I make sure I completely use up products in bottles, tubs and drums (solvents, oils, paint, etc.).
4.6. I STORE HAZARDOUS PRODUCTS OR POLLUTANTS OVER BASINS, I DO NOT USE THEIR EMPTY CONTAINERS FOR OTHER USES AND I TAKE THEM TO THE DESIGNATED COLLECTION POINTS.

Avoid overstocking.
The capacity of the retention area must always be great enough to collect the total volume of a storage unit. It must therefore be emptied and cleaned regularly so that it can perform its function at all times.

Please note: The contents of the retention areas are as dangerous as the products they are designed to collect.

Reminder: Spill containment systems and retention areas are not workplaces or storage zones for equipment or any other products.

Hazardous liquids (e.g. contained in reservoirs, acid or base cubitainers, oil drums, solvent containers, etc.) must be left or stored over a spill containment system or retention area as a matter of course.

All flow or leak risks must be managed by the introduction of a dam or collection system.
It is forbidden to reuse an empty container for any other use. Indeed, these have been designed to contain only the product for which they have been anticipated. An empty container is as dangerous as a full container. Empty containers must be taken to the collection points defined in the waste sorting procedure or at site launch. If we notice a full or empty container in an inappropriate place, it is our duty to act immediately if we are able, in accordance with the safety guidelines, and if necessary to notify the competent persons.

Deactivating measuring or protection devices can seriously harm the environment.
Everybody must ensure that these devices are kept in working order and, if not, they should act if possible or notify the competent persons immediately.
Measuring devices alert us to the environmental impacts in the event of an anomaly and it must be ensured that they are always active.
Keep noise control devices (panels, shrouds, covers, etc.), fume treatment equipment (absorbers) and atmospheric discharge filtration devices in place and in working order.
4.8. IN THE EVENT OF AN INCIDENT, I IMMEDIATELY FOLLOW THE EMERGENCY PROCEDURE AND USE THE SPILL KITS CORRECTLY.

In any place where pollutant products are loaded, unloaded, stored or used, the Simplified Safety Data Sheets are displayed. These SSDSs describe the specific pollution control measures to be taken in the event of an incident and give instructions relating to safety and elimination of the waste generated.

In the event of an incident, the internal and/or external persons in a position to act must:

- help to secure the sites and use spill kits
- help to evacuate the sites via the routes provided inside and outside the halls
- make themselves available to the external emergency services

As for Safety, any environmental incident must be reported using the Emergency number:

900 or 064/ 27 2900

4.9. I AM COMPLETELY TRANSPARENT WHEN IT COMES TO SHARING ALL THE FACTS, INFORMATION AND CIRCUMSTANCES REGARDING AN INCIDENT

If we want to achieve Excellence when it comes to safety and the environment, it is essential for everybody to share the facts, information and circumstances regarding any incident or accident, with no interpretation or distortion. This enables the actual causes to be detected and corrective and preventive measures to be taken to prevent recurrence of the incident/accident.

It is essential that everybody, whatever their level, puts forward proposals and opinions to the competent persons with the aim of improving safety, preventing accidents, reducing pollution and meeting our obligations in relation to Safety and the Environment.
5.1. HAND HYGIENE

When should you wash your hands?

- after work,
- before and after going to the toilet,
- before eating and smoking,
- after any contact with a chemical or dust, etc.

Hand hygiene steps

1. Wet your hands
2. Spread soap over the whole surface of your hand in a circular motion
3. Rub the palms of your hands thoroughly
4. Rub the back of each hand
5. Rub between your fingers
6. Rub the ends of your fingers, palm to palm
7. Rub each thumb inside the palm of the opposite hand
8. Rub the ends of your fingers in a circular motion on the palm of the opposite hand
9. Rinse your hands thoroughly under running water
10. Dry your hands thoroughly before you touch anything

YOU SHOULD SPEND 30 SECONDS WASHING YOUR HANDS

GENERAL REQUIREMENTS FOR HEALTH - SAFETY - ENVIRONMENT IN THE WORKPLACE
5.2. CLOAKROOMS AND SHOWERS

Site cloakrooms and showers are reserved for NLMK La Louvière personnel.

The contracts signed between NLMK La Louvière and external companies coming to work on the site state that the employer shall provide cloakrooms and sanitary facilities for use by its personnel.

Basic rules for cloakrooms and showers:

- Look after the equipment provided to you
- Lock your locker properly
- Do not mix your everyday clothes and work clothes
- Work clothing should not leave the factory for hygiene reasons: Do not take the dirt and dust to which you are exposed at work home with you
- Sandals and wipes are provided. For hygiene reasons, put your sandals on in the shower to prevent infections caused by fungi commonly found in communal showers or damp places. For the same reason, once you have washed your feet, dry them correctly.
Management of dirty clothes:
- Change work uniform regularly (do not keep wearing clothes covered in grease or dust). "Dirty clothing" cupboards are provided for this purpose

5.3. TOILETS AND URINALS
Rules of conduct and use:
- Do not damage the sanitary facilities provided. Leave them clean, just as you found them
- Toilet facilities are provided throughout the halls. Please use them. It is forbidden to urinate anywhere other than the facilities provided for this purpose
- For hygiene reasons, wash your hands before and after going to the toilet

5.4. DINING AREAS
It is forbidden, for hygiene reasons, to eat at your workstation. The dining areas should therefore be used.
The site dining areas are reserved exclusively for use by NLMK La Louvière personnel.
Basic rules for dining areas:
- Smoking and vaping are not permitted in the dining areas
- Keep the premises clean and use the cleaning equipment provided if necessary
- Sort and dispose of waste in the bins provided
- Do not leave food lying around on the tables
- Empty and clean refrigerators and microwaves regularly

5.5. SMOKING AREAS
It is forbidden to smoke or vape anywhere in the factory, even outside the buildings, with the exception of the designated smoking areas provided and signposted by the pictogram opposite.
Do not throw cigarette butts on the ground.
A.1. CARRIAGE, LOADING/UNLOADING OF DANGEROUS GOODS (ADR)

A.1.1. In the event of an accident:

- Evacuate the site of the accident calmly to allow the emergency services to do their job more easily.

- Call the internal emergency number 900 or 064/27 2900 and give the following information:
  - The precise location of the accident (and the direction on motorways)
  - The extent of the accident (evaluation of injuries and property damage)
  - The hazard code and the number of the product on the orange placards

A.1.2. Classification of hazardous materials

Class 1: Explosive substances and objects
Class 2: Gases (compressed, liquefied or dissolved)
Class 3: Flammable liquids
Class 4.1: Flammable solids
Class 4.2: Spontaneously combustible substances
Class 4.3: Substances which in contact with water emit flammable gas
Class 5.1: Oxidizing substances
Class 5.2: Organic peroxides
Class 6.1: Toxic substances
Class 6.2: Infectious substances
Class 7: Radioactive material
Class 8: Corrosive substances
Class 9: Miscellaneous dangerous substances and objects
A.1.3. Information labels

Handling label

Hot products mark

Environmental hazard label

A.1.4. Orange hazard placards

Tankers, bulk

Packages

A.1.5. The table gives the meanings of the hazard codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Primary hazard</th>
<th>Secondary hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A double figure indicates a greater hazard</td>
</tr>
<tr>
<td>X</td>
<td>Water and foam prohibited</td>
<td>If a hazard identification number is prefixed by letter 'X', this indicates that the substance will react dangerously with water</td>
</tr>
<tr>
<td>0</td>
<td>No secondary hazard</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Explosive substances and objects</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Compressed or liquefied gases or gas dissolved under pressure</td>
<td>Emanations of gas resulting from pressure or a chemical reaction</td>
</tr>
<tr>
<td>3</td>
<td>Flammable liquid substances</td>
<td>Flammability of liquid substances (vapors) and self-heating gases or liquids</td>
</tr>
<tr>
<td>4</td>
<td>4.1 - Flammable solids</td>
<td>Flammability of solids or self-heating solids</td>
</tr>
<tr>
<td></td>
<td>4.2 - Spontaneously combustible substances</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.3 - Substances which in contact with water emit flammable gas</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5.1 - Oxidizing substances</td>
<td>promotes fire</td>
</tr>
<tr>
<td></td>
<td>5.2 - Organic peroxides</td>
<td></td>
</tr>
</tbody>
</table>
## Meanings of HAZARD CODES and classes

<table>
<thead>
<tr>
<th>Code</th>
<th>Primary hazard</th>
<th>Secondary hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>6.1 - Toxic substances</td>
<td>Toxicity or danger of infection</td>
</tr>
<tr>
<td></td>
<td>6.2 - Repugnant substances or substances likely to produce an infection</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Radioactive material</td>
<td>Radioactivity</td>
</tr>
<tr>
<td>8</td>
<td>Corrosive liquid substances</td>
<td>Corrosiveness</td>
</tr>
<tr>
<td>9</td>
<td>Miscellaneous dangerous substances and objects</td>
<td>Danger of violent spontaneous reaction</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>Refrigerated gas</td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>Solid transported in molten state</td>
</tr>
<tr>
<td>99</td>
<td></td>
<td>Unclassified products</td>
</tr>
</tbody>
</table>
A.2. PROPERTIES OF SUBSTANCES

Nitrogen (N₂)

Physical properties:
- Density at 0 °C and 1 atmosphere: 1.2505 kg/m³.
- Density compared to air: n0.97.
- Boiling temperature of liquid under 1 atmosphere: 195.8 °C.
- One liter of liquid releases: 691 liters of gas (at 15 °C and 1 bar).
- Nitrogen is a gas under normal conditions.
- Nitrogen is a non-flammable, non-toxic gas.
- It is a colorless, odorless and tasteless gas.
- Nitrogen is not corrosive and can be used in the presence of any common metal for ordinary temperatures.

Risks:
Nitrogen is a physiologically inert, non-toxic gas.

Risk of asphyxiation:
By displacing the oxygen in the air, it can have harmful effects on the body in the lungs and act as an asphyxiant in enclosed or confined spaces.
Contrary to popular opinion, an under-oxygenated atmosphere (<17% O₂) does not cause breathing difficulties or a feeling of suffocation, but manifests itself in minor ways, similar to those of the onset of anesthesia (dizziness, tingling sensation in the tongue, etc.).
In practice, uninformed people can breathe oxygen, air or nitrogen without becoming aware of it in good time.
In general, in an under-oxygenated atmosphere, the person gets to a stage of inability to move and call out at the time they become aware of the problem, i.e. when it is too late!

Oxygen (O₂)

No oxygen means asphyxiation, too much oxygen causes fire
It is an oxidizing gas that favors combustion. It is odorless and colorless.
- Oxygen tends to accumulate at low points;
- Do not bring oil or grease into contact with a valve, tap or the gas itself (risk of self-ignition).
- Do not use instead of air (formation of explosive atmospheres – increase in the flammability of materials).
- Do not connect respiratory masks to the oxygen network.

Storage:
- Never smoke nearby!!!
- Protect against solar radiation and heat sources.
- Store cylinders upright and attached in a ventilated area.
- Do not keep oxidizing products nearby.

Cylinder handling hazards
- Secure cylinders for transport (vertically in the case of acetylene).
- Use suitable trolleys for transport.
- Always have an appropriate fire extinguisher near to the place of use.

Physical properties:
- Density at 0 °C and 1 atmosphere: 1.429 kg/m³.
- Density compared to air: 1.105.
- Boiling temperature of liquid under 1 atmosphere: -183 °C.
- One liter of liquid releases: 854 liters of gas (at 15 °C and 1 bar).
- Oxygen is a gas under ordinary conditions, i.e. at 15 °C and at 1 atmosphere.
It is a colorless, odorless and tasteless gas.
Oxygen is a highly reactive gas that combines directly with most elements to form oxides.
Oxygen is a non-corrosive gas in the absence of moisture.

**Risks:**
Oxygen tends to accumulate at low points.
Because of its temperature, liquid oxygen can weaken certain materials and cause serious burns in contact with skin.
Pure oxygen favors and activates combustion (organic substances, greases, steel, etc.), this phenomenon is made worse by the effects of pressure or velocity.

**Air**

**Normal composition:**
N₂ = 78.09%, O₂ = 20.94%, Ar = 0.93%, CO₂ = 0.033%, + other.

**Physical properties:**
- Density at 0 °C and 1 atmosphere: 1.2928 kg/m³.
- The primary function of air is to maintain animal life on Earth and to support combustion.

**Risks:**
See nitrogen risk "Risk of asphyxiation".
Danger when the oxygen concentration falls below 17% (risk of asphyxiation).
The oxygen in the air is an oxidizing gas that can form with fuels flammable or detonating mixtures.
Danger when the air is rich in oxygen and the concentration exceeds 25% O₂ (risk of rapid combustion of organic substances, greases, stained clothing, etc.).

**Carbon monoxide (CO)**

**Physical properties:**
- Flammability in air at 20 °C and 1 atmosphere: 12.5% to 74% CO.

**Flammable gas chemical asphyxiant,** found in coke furnace gases (6%) and blast furnace gases (22%). At present, it can be the result of incomplete combustion.
- Self-ignition temperature at 1 atmosphere: 420 °C.
- Density compared to air: 0.97.
- CO is a gas under ordinary conditions.
- CO is a flammable, colorless and odorless gas.
CO is a highly toxic gas even at low doses. It can cause headaches, vomiting, coma and death.

Risks:
CO is a flammable, highly toxic gas. The density of CO is similar to that of air.

Carbon dioxide (CO₂)
Sometimes used in automatic fire protection systems, it is used to fight fires by reducing the oxygen content of the air. Rooms where there is a high carbon dioxide risk are signposted. If the alarm goes off, evacuate as quickly as possible. Important: CO₂ is odorless, etc.

Physical properties:
- Density compared to air: 1.53.
- CO₂ is a non-flammable gas.
- CO₂ is not toxic at low concentration.
- 3 to 5% CO₂ in the air (risk of headaches).
- 8 to 15% CO₂ in the air (risk of headaches, nausea, vomiting, etc.).
- Exposure to higher concentrations can be fatal.

Risks:
Carbon dioxide is heavier than air. It builds up at ground level and can cause asphyxiation as a result of a lack of oxygen in confined spaces or cellars.

Hydrogen (H₂)
Physical properties:
- Flammability in air at 20 °C and 1 atmosphere: 4% to 74.5% H₂.
- Self-ignition temperature at 1 atmosphere: 570 °C.
- Minimum ignition energy: 0.02 millijoules (10 times lower than for CH₄).
- Flame temperature in the air: 1,430 °C.
- Density compared to air: 0.0695.
- Gross calorific value (GCV): 3,050 Kcal/Nm³ (1 cal = 4.186 Joules).
- Net calorific value (NCV): 2,570 Kcal/Nm³.
- One liter of liquid H₂ (-253 °C) releases: 843.9 liters of gas (at 15 °C and 1 bar).

- Simple gaseous body under ordinary conditions (15 °C and 1 atmosphere).
- Colorless, odorless and tasteless gas.
- The lightest gas (15 times lighter than air).
- Non-toxic but highly flammable.
- The flame produced is not very radiant.
- Hydrogen is a very powerful reducing agent that has great affinity for oxygen and all oxidizers.

Risks:
Hydrogen is highly flammable and can form explosive mixtures with air. The flame produced by the combustion of H₂ is not very visible.
At high pressure, hydrogen can make normally ductile metals fragile.
Methane (CH₄)

Physical properties:
- Flammability in air at 20 °C and 1 atmosphere: 5 to 15% CH₄.
- Self-ignition temperature at 1 atmosphere: 580 °C.
- Minimum ignition energy: 0.2 millijoule
- Flame temperature in the air: 1,957 °C.
- Density compared to air: 0.555.
- Gross calorific value (GCV): 9,530 Kcal/Nm³ (1 cal = 4.186 Joules).
- Net calorific value (NCV): 8,570 Kcal/Nm³.
- CH₄ is a flammable gas with no specific toxicity.
- It is colorless and odorless. It is lighter than air.

Risks:
Methane is flammable and can form explosive mixtures with air.
Methane can cause asphyxiation due to lack of oxygen in enclosed or confined spaces.

Natural gas (CH₄ + (x))
It is a flammable gas lighter than air. Like methane, it can cause asphyxiation due to lack of oxygen in enclosed or confined spaces. In its pure state, it is a colorless and odorless gas. The gas's odor tends to come from a tracer (THT) injected into the gas. ([THT] = tetrahydrothiophene)

Composition of natural gas:
± 89% CH₄ + ethane, propane, butane, nitrogen, etc.

Physical properties:
- Flammability in air at 20 °C and 1 atmosphere: ± 5% to 15% like CH₄.
- Density compared to air: 0.634.
- Gross calorific value (GCV): ± 9,800 Kcal/Nm³
- Net calorific value (NCV): ± 0.9 x GCV.
- Natural gas is lighter than air and colorless.
- The odor of natural gas comes from a tracer (THT) injected into the gas in the amount of 20 mgr/m³ of gas. (THT = tetrahydrothiophene).

Risks:
Natural gas is flammable and can form explosive mixtures with air or oxygen. Like methane, it can cause asphyxiation due to lack of oxygen in enclosed or confined spaces.

Acetylene (C₂H₂)
Acetylene (C₂H₂) is a highly flammable gas that is lighter than air. It is a narcotic gas at low concentrations. It is colorless but is easy to detect by smell. Acetylene is an unstable gas at normal temperatures, which is why it is packaged in its dissolved state, in solvents such as acetone that are held by a porous support lining the inside of the cylinders. It also reacts with copper, silver and mercury.
In the event of a fire, cool the cylinders by spraying them with water for at least 2 hours and call the fire brigade.

Never tilt acetylene cylinders more than 30°!!!

Avoid copper connectors and end pieces.

**Physical properties:**
- Flammability in air at 20 °C and 1 atmosphere: 2.2% to 85% C$_2$H$_2$.
- Self-ignition temperature at 1 atmosphere: 305 °C.
- Minimum ignition energy: 0.02 millijoule
- Flame temperature in the air: 2,590 °C.
- Density compared to air: 0.91.
- Gross calorific value (GCV): 13,980 Kcal/Nm³ (1 cal = 4.186 Joules).
- Net calorific value (NCV): 13,490 Kcal/Nm³.
- Vapor pressure in bar at 0 °C: 11.7 bar.
- One liter of liquid releases: 556 liters of gas (at 15 °C and 1 atmosphere).

Acetylene is a narcotic gas at low concentrations. Acetylene is lighter than air under ordinary conditions (15 °C and 1 atmosphere). It is colorless but is easy to detect by smell (from 0.1% in the air).

Acetylene is unstable at normal temperatures and can cause thermal ignition above 2 bar. This is why it is packaged in its dissolved state, in solvents such as acetone that are held by a porous support lining the inside of the cylinders.

**Risks:**
Acetylene is a highly flammable gas and is unstable under certain conditions. It reacts with halogens and can cause explosions.

Given the properties above, cylinders should be handled with great care.

**Propane (C$_3$H$_8$)**
Under ordinary conditions, it is a flammable gas that is heavier than air. It can cause asphyxiation as a result of a lack of oxygen in enclosed or confined spaces (take care in cellars).

Propane is also a narcotic gas that can lead to coma following a phase of inebriation.

**Physical properties:**
- Flammability in air at 20 °C and 1 atm.: <2.2% to >9.5% C3H8.
- Self-ignition temperature at 1 atm.: 480 °C
- Minimum ignition energy: ****
- Flame temperature in the air: 1,980 °C
- Density/air: 1.55
- Gross calorific value (GCV): 24,350 Kcal/Nm³
- Net calorific value (NCV): 22,380 Kcal/Nm³
- Vapor pressure in bar at 0 °C: 4.8 bar
- One liter of liquid releases: 311 liters of gas (at 15 °C, 1 bar)
- It is a gas under ordinary conditions (15 °C, 1 atm).
- At high concentration, propane is a narcotic gas that can lead to coma following a phase of inebriation.
- Propane, in its pure form, is a colorless, odorless gas.

**Risks:**
- Propane is flammable and can form explosive mixtures with air.
- Propane is heavier than air and can cause
asphyxiation in enclosed or confined spaces. (Take care in cellars).

• It is a narcotic gas at high concentration.

Butane (C₄H₁₀)
Under ordinary conditions, it is a flammable gas much heavier than air and has the same characteristics as its cousin propane. It is recommended not to use it at levels below ground level (cellars, etc.).

Physical properties.
• Flammability in air at 20 °C and 1 atm.: <1.8% to >8.4% C₄H₁₀.
• Self-ignition temperature at 1 atm.: 420 °C
• Minimum ignition energy: ****
• Flame temperature in the air: 1,970 °C
• Density/air: 2.6
• Gross calorific value (GCV): 32,060 Kcal/Nm³ (1 cal = 4.186 Joules)
• Net calorific value (NCV): 29,560 Kcal/Nm³
• Vapor pressure in bar at 0 °C: 1 Bar
• One liter of liquid releases: 239 liters of gas (at 15 °C, 1 bar).
• Butane (n-butane) is a gas under ordinary conditions (10 °C, 1 atm). At high concentration, butane is a narcotic gas that can lead to coma following a phase of inebriation.
• Butane, in its pure form, is a colorless, odorless gas.

Risks:
Butane is a flammable gas much heavier than air. With butane, there is a risk of asphyxiation due to lack of oxygen in cellars and enclosed or confined spaces.

It is a narcotic gas at high concentration.

Hydrochloric acid (HCl)
Properties:
Highly acidic aqueous solution. Liquid fuming in air, colorless to yellow and pungent odor.

Use:
Industrial, reagent, cleaning product, pH reduction agent, pickling agent.

Storage:
Keep only in the original sealed container, in a cool, dark, well ventilated place, away from oxidizing agents and bases.

DANGER: H290: may be corrosive to metals.
H314: causes severe skin burns and eye damage.
H335: may cause respiratory irritation.

Prevention and protection:
Skin
• Wear sealed chemical safety gloves made from PVC, neoprene or natural rubber.
• Wear acid-resistant clothing.
• Provide a safety shower nearby.

Eyes
• Wear a sealed mask or face shield.
• Carry a personal eye wash (Diphtherine).
• Provide an eye bath or safety shower nearby.
APPENDICES

Inhalation
• Ventilation of premises.
• Wear a protective respiratory mask (combination filter type B/E/P2).

Storage and leaks:
• Keep only in the original sealed container, in a cool, dark, well ventilated place, away from oxidizing agents and bases.
• Do not allow the product to get into the drains, water courses or the soil.

Refer to the SSDS: 001 (NLMK intranet)

Sodium hydroxide 20-50% - caustic soda

Properties:
Highly corrosive, colorless, odorless liquid.
(pH (at 50%): 14: alkaline => take care when handling the product

Use:
Neutralization of acid baths.
Water treatment

Storage:
Store in the original containers, in a well ventilated place, away from acids, halogenated hydrocarbons and nitro-derivatives.

Prevention and protection:
Causes severe burns

Skin
• Wear gloves and boots made from neoprene or nitrile rubber.
• Wear corrosion-resistant clothing

IMPORTANT

Eyes
• Wear a sealed mask or face shield.
• Carry a personal eye wash (Diphoterine).
• Provide an eye bath or safety shower nearby.

Inhalation
• Ventilation of premises.
• In the event of inadequate ventilation, wear a respiratory mask with filter type B.

Storage and leaks:
• Store in the original sealed containers, in a dry, well ventilated place, away from frost, heat sources and acids.
• Do not allow the product to get into the drains, water courses, etc.

Refer to the SSDS: 0088 (NLMK intranet)
### A.3. GESTURES FOR CONTROLLING THE HANDLING OF LOADS

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Description</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General gestures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Start</strong></td>
<td>Pay attention!: Commands are starting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Both arms held out horizontally, palms forward.</td>
<td><img src="image1" alt="Start Gesture" /></td>
</tr>
<tr>
<td><strong>Stop</strong></td>
<td>Interruption. End of movement.</td>
<td><img src="image2" alt="Stop Gesture" /></td>
</tr>
<tr>
<td></td>
<td>Right arm in the air, right palm forward.</td>
<td><img src="image3" alt="Stop Gesture" /></td>
</tr>
<tr>
<td><strong>End of operations</strong></td>
<td>Hands together, at chest height.</td>
<td><img src="image4" alt="Stop Gesture" /></td>
</tr>
<tr>
<td><strong>Vertical movements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Up</strong></td>
<td>Right arm in the air, right palm forward moving slowly in a circle.</td>
<td><img src="image5" alt="Vertical Up" /></td>
</tr>
<tr>
<td><strong>Down</strong></td>
<td>Right arm down by the side, right palm facing inwards moving slowly in a circle.</td>
<td><img src="image6" alt="Vertical Down" /></td>
</tr>
<tr>
<td><strong>Vertical distance</strong></td>
<td>The hands indicate the distance.</td>
<td><img src="image7" alt="Vertical Distance" /></td>
</tr>
</tbody>
</table>

### Horizontal movements

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Description</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Move forwards</strong></td>
<td>Both arms bent, palms facing inwards, forearms make slow movements towards the body.</td>
<td><img src="image8" alt="Move Forwards" /></td>
</tr>
<tr>
<td><strong>Move backwards</strong></td>
<td>Both arms bent, palms facing outwards, forearms make slow movements away from the body.</td>
<td><img src="image9" alt="Move Backwards" /></td>
</tr>
<tr>
<td><strong>To the right</strong></td>
<td>Right arm held more or less horizontally, palm of the right hand facing down, small, slow movements in the direction.</td>
<td><img src="image10" alt="To the Right" /></td>
</tr>
<tr>
<td><strong>To the left</strong></td>
<td>Left arm held more or less horizontally, palm of the left hand facing down, small, slow movements in the direction.</td>
<td><img src="image11" alt="To the Left" /></td>
</tr>
</tbody>
</table>

### Danger

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Description</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Danger</strong></td>
<td>stop or emergency stop</td>
<td><img src="image12" alt="Danger Gesture" /></td>
</tr>
<tr>
<td><strong>Quick movement</strong></td>
<td>The gestures indicating movements are done quickly.</td>
<td><img src="image13" alt="Quick Movement" /></td>
</tr>
<tr>
<td><strong>Slow movement</strong></td>
<td>The gestures indicating movements are done very slowly.</td>
<td><img src="image14" alt="Slow Movement" /></td>
</tr>
</tbody>
</table>
### A.4. FIRE-FIGHTING EQUIPMENT

<table>
<thead>
<tr>
<th>Fire class</th>
<th>Flammable substances</th>
<th>Recommended extinguishing means</th>
<th>Prohibited extinguishing means</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>Solid substances: paper, wood, textiles, etc.</td>
<td>Water, CO₂, ABC powder, foam</td>
<td>BC powder</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Liquids: paint, varnish, petrol, oil, etc.</td>
<td>Foam, CO₂, ABC powder</td>
<td>Water</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Gases: natural, LPG, propane, butane, etc.</td>
<td>CO₂, ABC powder</td>
<td>Water, foam</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>Metals: aluminum, magnesium, sodium</td>
<td>D powder</td>
<td>Water, CO₂, foam, ABC powder</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>Electrical installations</td>
<td>ABC powder, CO₂</td>
<td>Water</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>Greases and oils</td>
<td>Grease fire extinguisher</td>
<td>Water, CO₂, foam, ABC powder</td>
</tr>
</tbody>
</table>