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Thematic note

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Standardization in occupational health and safety

Essential primary prevention lever

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comprendre les risques professionnels en Europe
understanding occupational risks in Europe

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ACRONYMS OR EXPRESSIONS FREQUENTLY USED

CARSAT : Retirement and Occupational Health Insurance Fund

CGSS : Overseas Health Insurance Fund (in the French Overseas Departments and Territories)

CNAM-DRP : French National Health Insurance Fund - Occupational Risks Department of CNAM

CPAM : Primary Health Insurance Fund

CRAMIF : Ile-de-France Regional Health Insurance Fund

DRSM : Regional Medical Services Departments

INRS : National Research and Safety Institute

EN Standard: European standard

NF standard: French standard

ISO Standard: International standard

OHS: Occupational Health and Safety

MSDs: Musculoskeletal disorders

The Occupational Injuries and Diseases Branch

The Health-Occupational Risks Insurance is one of the five branches of the Social Security.

Dedicated to accidents at work and occupational diseases, it implements a global risk management policy for 2.2 million companies and 18.6 million employees in the general scheme (industry, trade and services) [1].

Within the guidelines set by the Commission des accidents du travail/ maladies professionnelles (CAT/MP – Occupational Injuries Committee), it has three complementary missions: prevention, compensation and pricing of occupational risks through the following organisations:

- The Occupational Risks Department (within CNAM),
- INRS,
- EUROGIP,
- The prevention and pricing services of CARSAT, CRAMIF and CGSS,
- The services responsible for investigating cases and compensating victims of accidents at the CPAM and CGSS,
- The DRSM.

What is a standard?

Launched on the initiative of market players (manufacturers, trade unions, consumers, associations in the sector involved, etc.), the standard is a reference framework that aims to provide guidelines, technical or qualitative requirements for products, services or practices in the general interest.

It is the result of a consensual co-production between professionals and users who have been involved in its development. Any organization may or may not use it and refer to it, which is why the standard is called voluntary (AFNOR definition).

With regard to OHS, European regulations give products manufactured according to certain « harmonised » standards (and therefore published in the Official Journal of the EU) a presumption of conformity with the essential safety requirements of Community texts.

These products can then circulate freely on the European market and be used widely in the workplace.

Moreover, even if a standard has no retroactive effect, the technical requirements it contains constitute a set of best practices to which OHS experts can refer when securing existing equipment. It is often complementary to the recommendations of the Occupational Injuries and Diseases Branch.

[1] The «Social Scheme for the Self-employed» disappeared on 1 January 2018 and integration into the General Social Security Scheme will take place during a transitional period of 2 years.

Why is the Injuries and Diseases Branch involved in the development of OHS standards?

The Occupational Injuries and Diseases Branch has been involved in the development of OHS standards, under the coordination of EUROGIP, for many years. Standardization, a primary prevention activity, makes it possible to integrate OHS from the design stage of products and mainly targets machinery and personal protective equipment.

This participation also allows the know-how of the Occupational Injuries and Diseases Branch in occupational risk prevention to be highlighted in measurement and test method standards.

In addition to a real valorisation of its knowledge with French, European and international designers and users, the active participation of OHS experts from the French Occupational Injuries and Diseases Branch in standardization work enables it:

- to be able to express and promote directly the general principles of prevention,
- to promote the state of the art most favourable to prevention and thus reduce dangerous situations,
- to ensure that better account is taken of aspects relating to emissions (chemical particles, dust, aerosols, biocontaminants, etc.), physical nuisances (noise, vibrations, radiation, etc.) and ergonomics, making it possible to reduce the risk of occupational diseases (MSDs, cancers, hearing loss, etc.).

The Occupational Injuries and Diseases Branch reaffirmed its ambitions in the 2018-2022 Convention d'Objectifs et Gestion (COG – Objectives and Management Covenant) it signed with the State, namely:

- anticipate the occupational risks of tomorrow and sustainably prevent the impact on health and safety at work that innovation and new technologies can generate,
- position itself and influence the decisions taken by the major national, European and/or international players in the field of standardization.

The concrete contribution of OHS standards through six examples

This document illustrates with six examples how certain standards, to which the Occupational Injuries and Diseases Branch has contributed, can improve occupational health and safety at work.

1 Drilling and foundation equipment

2 Sorting cabins

3 Manual load handling

4 Roller brake testers

5 Acoustics in open-plan offices

6 Safety footwear

1 Drilling and foundation equipment

Before

Over the past twenty years, nearly 40 workplace accidents have involved drilling equipment, more than one out of two was fatal (64%).

Since the mobile working element (drilling tool) was not protected, the majority of these accidents were caused by the entrapment of a garment or part of the body of the operator/operator's assistant who was in the vicinity of the drilling tool.

Standard NF EN 16228:2014

Drilling and foundation equipment - Safety - Part 1: Common requirements – Part 2: Mobile drill rigs for civil and geotechnical engineering, quarrying and mining

After

The participation of the Occupational Injuries and Diseases Branch in standardization work, as well as the results of an INRS study on drills included in the European standard EN 16228, have improved **operator protection** against risks related to moving parts during:

- **the drilling phase,** by protecting direct access to rotating parts (drill string, tools, auger) with the installation of guards or protection devices;
- **the tool change** phase (when the guards are open), by commissioning a «reduced» mode allowing the rotation and translation of the drill string with reduced speed and hold-to-run controls.

In addition, **stopping performance devices for moving parts** have been imposed in the standard in order to ensure the fastest possible stopping time.

2 Sorting cabins

Before

During the sorting of recyclable waste, workers are exposed to the risks of accidents at work and occupational diseases: respiratory disorders or skin and eye diseases caused by airborne dust; musculoskeletal disorders (MSDs) of the upper limbs and low back pain due to the posture of operators and the grip areas, etc.

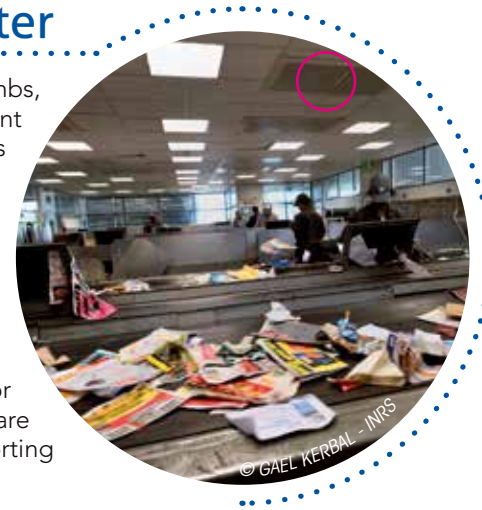
Standard NF X35-702:2015

Safety of machinery - Ergonomic principles for the design of sorting cabins intended for the manual sorting of recyclable and dry household and similar waste originating from selective collection

After

In order to limit the stress on the operators' upper limbs, the French standard NF X35-702 takes into account the so-called «comfort» **grip areas** and recommends the **positioning of sorting agents** at 45° in relation to product flow. It also defines the position of the **outlets** (waste disposal chutes). In addition, above each workstation is placed a **delivery plenum** that allows each sorter to be located in a vertical downward flow of fresh air.

According to the Agence de l'environnement et de la maîtrise de l'énergie (ADEME – Agency for the Environment and Energy Management), there are about 450 installations in France in 2018 with a sorting capacity of 7 million tons.



The experts of the Occupational Injuries and Diseases Branch who participated in the development of this standard continue their work by taking it to the international level.

3 Manual load handling

Before

Manual handling of loads is often accompanied by strong postural constraints, which are the cause of many accidents at work and occupational diseases.

Low back pain represents one out of two accidents at work requiring more than four days of absence.

Musculoskeletal disorders account for three-quarters of recognized occupational diseases.

Many workers handle heavy loads as part of their work several hours a week.

Standard NF X35-109:2011

Ergonomics – Manual load handling for lifting, moving and pushing/pulling - Analysis methodology and threshold values

After

The French standard NF X35-109 proposes **risk analysis criteria** as well as load handling **threshold values** based on reference elements such as distance travelled, handling height, tonnage, body position, frequency, etc. It thus makes it possible to objectify actual work situations.

For example, an electric pallet truck, known as a high lift pallet truck, makes it possible to adjust the height at which packages are picked up or deposited on a pallet (51 million pallets produced in France in 2015). It is therefore recommended in all logistical activities, particularly to reduce back strain.

By facilitating the identification of stress factors, the participation of the Occupational Injuries and Diseases Branch in standardization work has helped to technically improve the handling conditions of certain loads (lifting, transporting, pushing/pulling, with load displacement) in a professional context.

4 Roller brake testers

Before

During technical inspections on heavy goods vehicles, these vehicles are driven on roller benches called « roller brake testers » which drive the wheels and axles during the brake test.

Workers are required to operate near the axles and, in the event of an unintentional start, there is a deadly risk of being caught in the rollers.

Previously, these benches were unprotected. Some were even automatically started as soon as heavy goods vehicles were on the rollers. As a result, this type of equipment has caused serious and fatal accidents.

Standard NF R63-706 - EN 17003:2018

Road vehicles - Roller brake testers for vehicles of more than 3.5 tons GVW - Safety requirements - *Published in 2013 – European adoption of the standard: EN 17003*

After

Technical measures included in the standard:

- it must only be possible **to start up the rollers** by voluntary action by the operator (modification of the remote controls);
- **light curtains or gratings** prevent the operator from accessing moving parts in the pit;
- to prevent the operator from being caught by the rollers when accessing from above, **mechanical protection** or other devices (e. g. laser scanner) are required;
- the installation of an **indicator light** and/or a **sound signal** before starting the rollers and throughout the operating time completes the previous measures.

The participation of the Occupational Injuries and Diseases Branch in the work of the French standard NF R63-706 made it possible to integrate protective measures for all roller brake testers installed after 2013. The Occupational Injuries and Diseases Branch then invested itself to bring this French standard to the European level. This made it possible to make further improvements to this standard and to widely disseminate the protection solutions recommended by the Occupational Injuries and Diseases Branch.

5 Acoustics of open-plan offices

Before

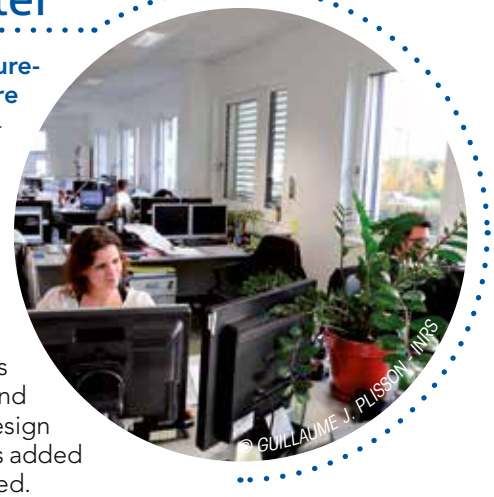
Workers in open-plan offices complain about the annoyance caused by ambient noise and surrounding conversations.

This discomfort is directly related to the activity carried out as well as to the acoustic quality of the premises and causes fatigue, stress, irritability, concentration problems, etc.

Standard NF S31-199:2016

Acoustics - Acoustics performances of open-plan offices

After



This standard is based both on **acoustic measurements** and on the use of the **GABO questionnaire** «acoustic annoyance in open-plan offices» developed by INRS in partnership with INSA Lyon. This questionnaire has been incorporated into the standard.

In parallel with the development of the standard, this approach was applied to a railway station in which employees complained about high noise levels and a lack of privacy in **sales areas.** Following the intervention of INRS, recommendations were made to improve acoustics in these spaces and general recommendations were made for their design in other major stations. In particular, **absorbent** was added to the walls at the top and the spaces were enlarged.

The Occupational Injuries and Diseases Branch contributed to the drafting of the French standard NF S31-199 which defines the approach for evaluating and reducing noise in open-plan offices, and to the integration of the GABO questionnaire into this standard. The experts of the Occupational Injuries and Diseases Branch continue their action by taking this reference framework to the international level.

6 Safety footwear

Before

A few years ago, CRAMIF alerted INRS to the increase in accidents at work on site, in which workers had their feet punctured by a nail while wearing protective footwear with anti-perforation soles.

Some accidents have resulted in absences from work of several months.

The investigations carried out revealed that, since the early 2000s, anti-perforation soles historically made of steel have been mainly made of textile materials. The standardised test method developed for steel soles was not suitable for testing textile soles.

Standard EN ISO 20344:2012
Personal protective equipment - Test methods for footwear

Standard NF EN ISO 20345:2012
Personal protective equipment - Safety footwear

Standard NF EN ISO 20346:2014
Personal protective equipment - Protective footwear

STANDARDS CURRENTLY UNDER REVISION

After

INRS has identified improvements to be made to this method to make it applicable to textile soles.

By informing the European (CEN) and international (ISO) standardization committees of this problem, the Occupational Injuries and Diseases Branch has triggered the revision of the international standards on protective and safety footwear.

The standards for shoe specifications and testing are currently being revised and are based on INRS recommendations.

In parallel, interlaboratory tests on the basis of the amended method were organised in a working group, involving manufacturers, test laboratories, notified bodies and INRS. This work has already made it possible to develop the products without waiting for the publication of the revised standards.

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