



Mechanical wood industry

Safety regulations S415, effective as of 1 April 2020

1 Purpose

These safety regulations are to be included in the insurance contract to supplement the actual insurance terms and conditions. These safety regulations include technical safety regulations and advice which, provided that they are complied with, may prevent loss and damage from occurring and diminish their volume.

The rescue and construction legislation as well as building regulations need to be taken into account in the planning, acquisition and implementation of fire safety.

2 Obligation to comply with safety regulations

These safety regulations are part of the insurance contract. Both the policyholder and the insured must comply with the safety regulations and its provisions. If these safety regulations are not complied with, the compensation may be reduced or completely denied in accordance with the Insurance Contracts Act. The policyholder must ensure that the people working in the facility are familiar with the contents of these safety regulations.

In addition, the following additional safety regulations apply to mechanical wood-processing:

Hot Work S621

Daily Fire Prevention S411

Safety Regulations for Structural Break-in Protection 1 S850

Prevention of Electric Fires S331

Automatic Fire Alarms S821

Fire Safety of a Solid-fuel Heating Station S925

3 General

In addition to mechanical wood processing and sawmills, these safety regulations are intended for industrial plants that are materially linked to the sector, for instance, as well as planing mills, joinery shops, and housing factories.

4 Daily fire prevention

4.1 Order, cleaning and maintenance

The policyholder must comply with the Daily Fire Prevention S411 safety regulations and draw up a separate cleaning programme, which must include the following:

- General cleaning
- Monitoring and cleaning of different areas
- Removal of sawing and other waste (daily, weekly, etc.)
- Removal of dust (at least twice annually)
- Daily cleaning of machinery and equipment
- Daily emptying of waste containers

Special attention must be paid to difficult areas, such as cleaning the undersides of electric engines, electric shelves and conveyors.

4.2 Dust and sawdust removal equipment

A separate maintenance schedule must be drawn up for dust and sawdust removal equipment, specifying the maintenance and checks applicable to the equipment.

Structural requirements for indoor and outdoor use:

A filter or silo located inside a building should be fire compartmented using an EI 60 structure at the minimum. The fire compartmentation requirement does not apply to bag filters that are removable or attached to wood-processing machinery.

A filter unit or silo located next to a building and closer than 8 metres from the building's eaves, or not protected by automatic extinguishing equipment, should be fire-compartmented using an EI 30 structure at the minimum. Fire compartmentation should be implemented at full wall height, including the eave structure, and laterally 4 metres along the outer wall, measured from the side of the filter or silo.

A filter or silo located on the roof should be fire compartmented to separate it from attic spaces, hollow spaces or production facilities, using an EI 30 structure at the minimum.

The structures of the dust and sawdust removal systems must be sealed to prevent the dust from spreading around.

The fire compartmentation requirement does not apply to removable bag filters attached to wood-processing machinery.

Technical protection requirements:

The dust and sawdust removal pipes should be equipped with spark detection and fire extinguishing systems in such manner that the hazardous access of sparks into the filter or silo is prevented.

The dust and sawdust removal equipment's filter unit or silo is protected with an automatic extinguishing system if the equipment is located closer than 8 metres from a building equipped with automatic fire extinguishing equipment. The minimum fire resistance of the sawdust pipes inside the building's attic or hollow spaces is EI 60.

The filter's intake air duct is equipped with a fire valve or shutter valve. A return air duct leading into an indoor space must be equipped with a fire valve. If a fire valve or shutter valve is not used, the dust and sawdust removal equipment must be equipped with a spark detection and fire extinguishing system.

The dust and sawdust removal system and pipes should include equipotential bonding and earthing. The equipotential bonding and earthing are inspected annually, and the measurement results are documented.

The suction and transferred air fans of the dust and sawdust removal equipment as well as their electric motors must conform to the ATEX requirements, where a safety device will stop them if the surface temperature exceeds 100°C.

Flammable liquid storage spaces as well as dry wood chippers must be located outside the building. The dust filtering stations must always be located at a safe distance outside the production building.

4.3 Surface treatment

Surface treatment may include, e.g. painting, grinding, varnishing and different kinds of coating. The major risks of surface treatment are related to flammable liquids, dust, static sparking and spontaneous combustion.

Flammable liquids are always stored in a separate space compartmented in accordance with the purpose of use, ventilated in accordance with the ATEX guidelines, and protected from container leaks.

Static sparking increases in surface treatment when the relative humidity drops below 25%. The risk can be significantly reduced by humidifying the air.

When it comes to flammable liquids and the use of composite plastic for coating, the prevention of static sparking should be taken into account, e.g. by means of the equipotential bonding of the metal frames of the composite plastic moulds, as well as earthing. Special attention should be paid to the design, installation and maintenance of earthing and equipotential bonding so as to prevent the static sparking hazard. The equipotential bonding and earthing should be checked on a regular basis, and the measurement results should be documented.

Only a quantity of flammable liquid needed for one day should be stored at the surface treatment department, and the excess fire load should be removed from the premises on a daily basis.

Any waste or residue generated by the surface treatment should be securely stored in lidded metal waste containers to prevent spontaneous combustion. The waste containers should be placed at least 1.5 metres from burning granules or materials. There should be at least 2 metres of free space above the waste container relative to the burning

material. The waste containers should be emptied at the latest at the end of the shift in a safe place to prevent the spread of spontaneous combustion.

Spontaneously combustible materials include flax-, hemp- and cotton-based oils. Turpentine, varnishes, alkyd paints and peroxide-based hardeners used in fibreglass work also create a self combustion hazard.

The dust generated while grinding as part of surface treatment is only led to the dust removal system in accordance with the instructions in section 4.2.

5 Sawmills

In addition to the actual sawing line, a sawmill also refers to all stages of the process from the log storage to the finished material storage.

5.1 Automatic fire extinguishing equipment

The most effective way of protecting sawmills is to equip them with automatic fire extinguishing equipment. The rescue and construction legislation as well as building regulations provide clear guidelines on when buildings should be equipped with sprinkler systems. Sawmills should always be equipped with a sprinkler system. A sawmill equipped with a sprinkler system may be granted concessions with regard to structures, compartmentation and rescue organisations. The sprinkler system should be designed and installed pursuant to the valid sprinkler regulations. Premises that include electrical equipment should also be protected with automatic fire extinguishing equipment. The most effective protection is achieved with automatic gaseous fire suppression equipment, as long as personal safety does not prevent it. If it is not possible to install fire extinguishing equipment, the premises must be protected with an automatic fire alarm system at the minimum.

The sawmill must have an up-to-date rescue plan that includes a plan drawn up against the possibility of accidents. The parts of the plans that apply to the personnel must be made known to everyone. The personnel must be provided with safety training at least every two years. New employees should be made familiar with the safety issues during orientation.

Large plants (with a sawing capacity of more than 80,000 m³) must have a fire safety manager and an industrial fire chief. Smaller plants must have a fire safety manager. The fire safety manager's responsibility is to manage, improve and monitor fire safety at the plant. The industrial fire chief is responsible for the personnel's safety training and drawing up safety plans, as well as the operations, training and readiness of the fire brigade. The industrial fire chief must have completed an industrial fire chief's training course.

Each department should have a trained fire marshal and a trained firefighting team. The fire marshal and the members of the firefighting team must be familiar with first-aid extinguishing and first measures in accident situations. In addition, the fire marshal monitors the implementation of fire safety in their area of responsibility on a daily basis.

Internal safety inspections need to be carried out regularly, and persons responsible for safety need to take part in the inspections. The purpose of safety inspections is to assess and improve fire and structural safety, and a record must be kept of them.

5.2 Structural fire safety

Fire compartmentation is subject to the requirements of the fire and building legislation, in addition to which the following spaces must be separated from production facilities in a fireproof way:

- transformer substations
- electric equipment rooms
- compressed air centres
- automation facilities
- flammable liquid storages
- hydraulics facilities
- blade maintenance and repair facilities
- maintenance facilities
- dry goods chipper facilities
- central dust filtering station
- working machine storages

5.3 Blades and blade maintenance

Blade maintenance should be carried out by trained and competent repair persons. Primarily, the blades should be sharpened in the sharpening room. However, if it is necessary to sharpen the blades elsewhere, the safety regulations pertaining to hot work must be taken into account. Blades meant for sawing wood should not be used to saw other materials.

Chemical safety

In accordance with the Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives, operators engaged in wide-scale industrial processing and storage must draw up an internal rescue plan.

The safe handling, storage and disposal of chemicals that pose a fire or explosion hazard must be implemented in accordance with the method referred to in the safety data sheets and the chemical's label. The employees should be provided with guidelines pertaining to the safe use, storage and disposal of chemicals that pose a fire or explosion hazard, and compliance with the guidelines should be monitored.

ATEX – Safety in potentially explosive atmospheres

The outcome of the risk assessment as well as the technical and organisational protection methods are presented in the explosion protection guide. The explosion protection guide should be drawn up in all workplaces where flammable liquid, gas or dust is stored or handled.

Free distance

The free distance between production buildings and storages as well as between various storage clusters should be at least 30 m. Wood materials or other flammable materials should not be stored near a production facility, for example, against its wall. A production facility should have

at least 10 m of unobstructed space around it. Sawdust and wood chip silos, open sawdust and bark storages as well as temporary wood storages should be located at least 10 metres from the sawmill building.

Traffic

There should be no public roads inside the sawmill area.

Unnecessary traffic inside the storage area should be kept to the minimum.

If cars, tractors, forklift trucks or other motorised vehicles are used inside the timber storage, the following must be taken into consideration:

- The vehicle must include at least one 43 A 233 BC class hand-held fire extinguisher
- Fuel depots for combustion engine vehicles should be fireproof and fuel supply must take place in a fireproof manner
- The exhaust pipes of engines should include a specific spark extinguisher
- The vehicle should be parked at a distance from production facilities and timber storages. The minimum distance between a standing working machine and a building or flammable material is 10 metres. If there are several motor vehicles parked in the same area on the site, they must be at least 5 metres apart from each other.
- The charging stations for electric forklift trucks should be located separately from production or storage facilities or a fire-safe charging station should be built for them and equipped with an extinguisher suitable for extinguishing electrical fires.
- All working machines working in fire hazardous areas, such as raw material fields, should be equipped with at least semiautomatic fire-extinguishing equipment. The insurer will provide further information regarding approved fire-extinguishing systems.
- A working machine should include a main power switch that must cut off the power in all devices of the working machine except for the automatic fire-extinguishing equipment. The power must be cut whenever the machine is out of commission.

First-aid extinguishing and standby readiness

Hand-held fire extinguishers and other first-aid fire extinguishing equipment needs to be appropriately inspected and regularly maintained. The areas in front of the first-aid extinguishing equipment should be kept unobstructed.

There must be at least one hand-held fire extinguisher for each 300-m² area, in such a manner that the maximum distance to the nearest hand-held fire extinguisher is 20 metres.

Use of the hose reel must be possible in the entire protected area. Assessment of the sufficiency of the hose reel must be based on the length of the hose. A space equipped with a hose reel must always be additionally equipped with an appropriate hand-held fire extinguisher.

The employees should be proficient with using first-aid extinguishers and familiar with making an emergency call.

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