

What has changed since the introduction of EN 14470-1 (safety cabinets for flammable liquids)?

After European Standard EN 14470-1 came into force in 2004 there were changes affecting both the manufacturers and users of safety cabinets, which for the first time in the history of safety were implemented throughout **EUROPE**:

✎ **The classification of the fire resistance capability was defined for 4 types:**

Type 15 = ≥ 15 minutes

Type 30 = ≥ 30 minutes

Type 60 = ≥ 60 minutes

Type 90 = ≥ 90 minutes

However, as Type 15 safety cabinets are not approved for use in Germany at all, and the use of Type 30 and Type 60 safety cabinets is subject to limitations (TRbF 20 Annex L), safety cabinets with a fire resistance capability **≥ 90 minutes (Type 90) are confirmed as being the state of the art in Germany.**

In contrast, in many other European countries the lack of legislation covering safety cabinets has meant that the use of the other type classes is permitted.

This is why we have safety cabinets from the lower type classes in our supply range (e.g. Type 30 = ≥ 30 minutes); however, these are exclusively intended for export.

✎ **The construction and testing of safety cabinets:**

- ◆ Type-testing of the whole safety cabinet construction in the fire chamber of an independent materials testing institute (flaming) according to test conditions that are uniform throughout Europe.
- ◆ Dimensional variations without comparative testing are limited to a reduction in the height and width of max. 100 mm and a reduction in the depth of max. 150 mm.



Fig.: SIS Type 30 / 1200 (≥ 30 minutes) for export (type-tested)

✎ **Protective aims:**

- ◆ Adequate escape time for employees in the workroom.
- ◆ Fire department personnel and rescue teams must be given sufficient time to enter the workroom before the hazardous substances stored in the safety cabinet turn a small fire that can be extinguished into an uncontrollable one.

Development and design



Testing by an independent materials testing institute



Approval / Test certificate





PRACTICAL INFO 4

The operator of safety cabinets as per DIN 12 925 part 1 / EN 14470 part 1 is responsible for their proper use. The corresponding requirements are covered in the German "Technical Rules for Flammable Liquids" (TRbF) 20-L and represent the basic safety requirements for operating safety cabinets for the storage of flammable liquids.

1. Fire resistance capability:

Safety cabinets within the meaning of the TRbF are particular devices with a fire resistance capability of > 90 minutes (as per EN 14470-1) – technological state-of-the-art in Germany. In the case of fire they ensure sufficient time for escape and rescue (requirement as per EN 14470-1).

2. Installation and operation:

... to protect employees and third parties, in particular from fire and explosion hazards

3. Collection volume:

Each safety cabinet must be equipped with a base trough which can accommodate at least 10 % of the total volume of all stored containers and/or 110 % of the volume of the largest stored container.

4. Self-closing doors:

Doors of safety cabinets as per EN 14470-1 are fundamentally self-closing. All storeLAB safety cabinets are equipped with a hold-open device (doors remain open during operation); this ensures safe operation, loading and removal. A thermal mechanism automatically closes the doors at a max. room temperature of 50°C.

5. Maximum storage amounts:

The amount of flammable liquids that can be stored in safety cabinets is limited! The total of all the stored containers (within a fire section) must not exceed the following maximum amounts:

- In breakable containers:
 - 60 litres extremely flammable and highly flammable liquids (flashpoint below 21°C)
 - 200 litres flammable liquids (flashpoint from 21°C to 55°C)
- In other containers:
 - 450 litres extremely flammable and highly flammable liquids (flashpoint below 21°C)
 - 3000 litres flammable liquids (flashpoint from 21°C to 55°C)
- The maximum storage amount for safety cabinets with a fire resistance capability (FWF) of less than 90 minutes is limited to max. 300 litres! Of this amount the extremely flammable and highly flammable liquids must not exceed max. 200 litres!

6. Ventilation:

With forced ventilation:

- Safety cabinets must be operated so that the air inlet and outlet system is constantly effective; the rate of air exchange with the cabinet doors closed must be at least 10 times per hour.
- Ventilation must be effective immediately above the base trough of the cabinet.
- The ventilation system must discharge into the atmosphere at a non-hazardous location.
- Air inlet and outlet opening must be automatically sealed at a max. temperature of 70°C (+/- 10°C).

Without forced ventilation:

- Avoidance of electrostatic charges – the cabinet must be grounded.
- The area of 2.5 m around the safety cabinet and up to a height of 0.5 m above floor level is to be regarded as a Zone 2 explosion-endangered area.



Collection trough systems

Shelving systems for hazardous substances

Safety cabinets

Open-air storage systems / projects

Fire protection container systems

Gas cylinder storage systems

Safety containers, handling systems, ...