

Checklist

Fire Protection

*Innovative Approaches for the Sound
Management of Chemicals and Chemical Waste*



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Below you will find a list of questions related to the prevention of fire hazards as illustrated in the “Fire Protection” presentation. If a question does not apply to your company, go to the next question.

- If you have answered “ No” or “ Partially” to one of the questions, additional measures should be taken and recorded on page 7.

Inventory of flammable substances: Ignition sources, oxygen sources

Please fill in the following table and checklist for each storage or working area.

Flammable substances

Flammable substances, groups of flammable substances (e.g. highly flammable liquids, gases and dusts)	Maximum quantity [kg]	Characteristics (e.g. flash point, minimum ignition temperature)

Ignition sources

Ignition sources

Examples: open flames, electrical, gas or oil fired heaters, engines or boilers, machinery, faulty or misused electrical equipment, lighting equipment (e.g. halogen lamps), hot surfaces, static electricity, electric or mechanical sparks

Oxygen sources

Oxygen sources

Example: natural airflow through doors/windows, mechanical air conditioning systems, chemicals, oxygen supplies from cylinder storage

Fire protection concept

1	<p>Has the company developed a fire protection concept?</p> <ul style="list-style-type: none"> - <i>Have the protection objectives been set?</i> - <i>Has the hazard inventory been drawn up?</i> - <i>Has the risk assessment been undertaken?</i> - <i>Have risk reduction measures been decided?</i> - <i>Has the fire protection concept been applied and have the protective measures been implemented?</i> 	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
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A **fire protection concept** is the result of a methodological procedure, where a range of essential protection measures (structural, technological, process-based, organizational) are planned according to the current situation, the identified hazards and the protection objectives.

Hazard inventory:

- Hazard potential
- Hazard activation
- Possible damage

Risk reduction measures: Construction measures

2	<p>Are safety distances between buildings used for the storage of hazardous substances and other buildings observed? (Figure 1)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
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<p>3</p>	<p>If safety distances between buildings cannot be observed, have compensation measures been taken?</p> <p><i>Example:</i></p> <ul style="list-style-type: none"> - Treatment of exterior walls - Treatment of openings - Treatment of roof undersides 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>4</p>	<p>Are safety distances between storage subareas observed (min. of three metres)? (Figure 2)</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>5</p>	<p>Are safety distances between storage compartments observed (minimum of ten metres) or are the compartments separated by a firewall? (Figure 3)</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>6</p>	<p>Are safety distances for the storage of flammable liquids and liquefied petroleum observed?</p> <p><i>More information in the "Fire Protection" presentation.</i></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>7</p>	<p>Are non-combustible materials used for buildings, especially for supporting structures and exterior walls?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>8</p>	<p>Are different activities (e.g. administration, storage, production) located in separate fire compartments?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>9</p>	<p>Is the size of the fire compartments limited, especially for those with a high fire hazard?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>10</p>	<p>Is the resistance of the fire compartments and fire-proof walls adapted to the amount of flammable/explosive substances?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>
<p>11</p>	<p>Are enough emergency escape routes available?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Partially</p> <p><input type="checkbox"/> No</p>

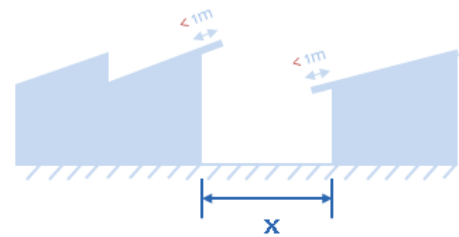


Figure 1: Safety distances
Source: Based on ECA

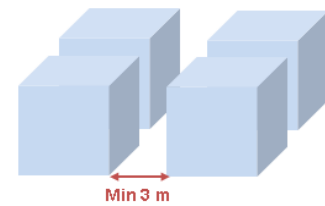


Figure 2: Safety distance between storage subareas
Source: Based on ECA

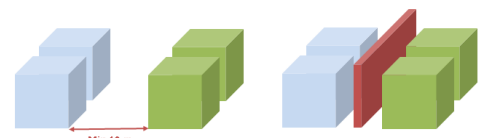


Figure 3: Safety distances or firewall between storage compartments
Source: Based on ECA

12	Are drainage and spill control systems designed to contain leakages and firefighting water?	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
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Risk reduction measures: Technical measures

13	Are air handling and smoke exhausting systems installed (automatic and manual)?	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
14	Is enough manual firefighting equipment available? (Figure 4) <i>Example:</i> - Fire extinguishers - Internal fire hydrants	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
15	Are manual alarm points installed? (Figure 5)	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
16	Is the sprinkler station located on the ground floor or first basement in premises able to resist a fire for at least one hour?	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
17	Is the sprinkler station able to continuously provide water for one hour at the appropriate pressure in case of a fire? (Figure 6)	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
18	Has a safety lighting system been installed?	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
19	Have gas detectors been installed for situations with a high risk of fire?	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No
20	In case of a medium to high fire risk, has an automatic fire detection system been installed?	<input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No



Figure 4: Fire extinguisher
Source: CSD



Figure 5: Fire alarm
Source: CSD



Figure 6: Sprinkler station
Source: CSD

Risk reduction measures: Organizational measures

<p>21</p>	<p>Have escape and emergency plans been developed? (Figure 7)</p> <p><i>Example:</i> <i>The emergency plan should include:</i></p> <ul style="list-style-type: none"> - Existing allocations - Particular fire hazards - Escape routes - Access ways for firefighters - Fire resistance of the supporting structures, fire compartments and fire protection equipment 	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>22</p>	<p>Has a preventive maintenance programme for all the equipment (including fire protection equipment) been implemented?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>23</p>	<p>Has a safety manager been appointed and appropriately trained?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>24</p>	<p>Has an employee training programme been implemented?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>25</p>	<p>Have evacuation drills been organized with local emergency services?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>26</p>	<p>Are fire doors, exits and fire equipment obstacle-free?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>27</p>	<p>Are fire doors kept closed?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>
<p>28</p>	<p>Are storage areas for flammable substances kept uncongested and tidy and away from any possible ignition source?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Partially <input type="checkbox"/> No</p>

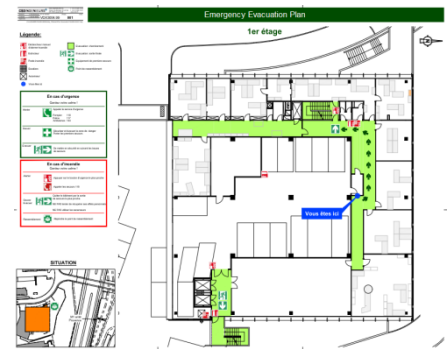


Figure 7: Emergency evacuation plan
 Source: CSD

Routine checks should ensure that the equipment has not been obscured, moved or damaged.

Staff should be instructed on the fire procedures and the correct use of the firefighting equipment. They should be familiar with the escape routes.

Checklist filled in by: _____

Date: _____

Signature: _____

Measures planned:
Fire prevention

Checked premises: _____

N°	Measure to implement	Deadline	Responsible	Measure implemented		Remarks	Check	
				Date	Visa		Date	Visa

Next check on the:

(recommended every 6 months)

Sources

CSD Engineers, Switzerland/ISSPPRO, Germany, 2015

ECA Incendie et éléments naturels: Installations sprinklers, Switzerland, 2008

ECA Incendie et éléments naturels: Installations d'extraction de fumée et de chaleur, Switzerland, 2008

ECA Incendie et éléments naturels: Installation de détection de gaz, Switzerland, 2008

ECA Incendie et éléments naturels: Installation de détection incendie, Switzerland, 2011

ECA: Du feu à l'incendie, Switzerland, 2010

Suva: Coupage et soudage – Protection contre les fumées, poussières, gaz et vapeurs, Switzerland, 2012

Suva: Liste de contrôle – Risques d'explosion, Switzerland, 2013