HazMat Guide
FLAMMABLES
Edition 2.0

The Ultimate Flammable Storage Guide
This is the second edition of the asecos HazMat Guide series for flammables. We have collected information from many sources and added our own content to make this an aid to help designing the safest possible workplace. This edition puts special focus on flammable storage. Look out for future HazMat Guide releases, specializing in corrosive storage, gas cylinder storage and more.

All HazMat Guides will be regularly reviewed and revised. We would be happy to receive your feedback, ideas or critiques and invite you to help us making this guide a valuable source of information in the industry. Feel free to send an email to academy@asecos.com

You will find that we sometimes refer to the German regulations (whenever we could not find an international source). Before applying this advice make sure to double-check with your local legislation and regulations. When in doubt you can always get in touch with one of our local agents or distributors. If nothing is available the German regulations might serve you as best-practice examples.

At the end of each chapter you will find „take away pages“, that conveniently summarize the most important elements.
## CONTENTS

### 1 HAZARDOUS MATERIALS | Terms & Definitions
- 1.1 What are hazardous materials? ................................................................. 8
- 1.2 How can hazardous materials be identified? ............................................. 10
- 1.3 Classification, Terms and Definitions of Flammable Liquids .................. 12
- 1.4 Measures for the protection of employees ............................................... 16
- 1.5 Consequences of improper storage ......................................................... 19
- 1.6 Chapter I - Take Aways ........................................................................... 22

### 2 STORAGE OF HAZARDOUS MATERIALS
- 2.1 General – term definitions ...................................................................... 26
- 2.2 Basic obligations for the storage of hazardous materials, irrespective of quantity 34
- 2.3 Building requirements for storerooms ..................................................... 37
- 2.4 Chapter II - Take Aways ........................................................................ 42

### 3 STORAGE OF FLAMMABLE LIQUIDS IN FIRE RESISTANT SAFETY STORAGE CABINETS
- 3.1 Types of safety storage cabinets .............................................................. 46
- 3.2 Safety features of a fire rated safety storage cabinet according to EN 14470-1 56
- 3.3 Advantages of fire rated safety storage cabinets .................................... 58
- 3.4 Requirements of fire rated safety storage cabinets ................................ 64
- 3.5 Variations of safety storage cabinets ....................................................... 70
- 3.6 Technical ventilation of safety storage cabinets ...................................... 76
- 3.7 Special purpose-built solutions ............................................................... 78
- 3.8 Chapter III - Take Aways ....................................................................... 80

### 4 ABOUT ASECOS .................................................................................... 82
1.3 CLASSIFICATION, TERMS AND DEFINITIONS OF FLAMMABLE LIQUIDS

Definition Flash point:
The temperature at which enough vapour escapes from a liquid that an ignitable mixture is created with the ambient air (EN 1127-1).

Classification and characteristics of flammable liquids
Classification and labelling of flammable liquids depends on the flash point of the liquid.

<table>
<thead>
<tr>
<th>FLAMMABLE LIQUIDS</th>
<th>Highly flammable LIQUIDS</th>
<th>Extremely flammable LIQUIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquids with a flash point equal to or greater than 23 °C (73.4 °F) and less than or equal to 60 °C (140 °F) and which support combustion when tested at 60 °C (140 °F).</td>
<td>Liquids with a flash point lower than 23 °C (73.4 °F) and with a boiling point higher than 35 °C (95 °F).</td>
<td>Liquids with a flash point lower than 0 °C (32 °F) and with a boiling point lower than or equal to 35 °C (95 °F).</td>
</tr>
</tbody>
</table>

Danger! no danger

outside temperatures

FLASH POINT
asecos GmbH
Sicherheit und Umweltschutz
Weiherseldung 16-18
DE-63584 Gründau
Phone +49 60 51 92 20–0
Fax +49 60 51 92 20–10
info@asecos.com

asecos Sarl
Sécurité et protection de l’environnement
1, rue Pierre Simon de Laplace
FR-57070 Metz
Phone +33 387 78 62 80
Fax +33 387 78 43 19
info@asecos.fr

asecos Ltd.
Safety and Environmental Protection
c/o Burton Accountancy Services
16 Eastgate Business Centre
Eastern Avenue
Burton on Trent, Staffordshire
DE13 0AT
Phone +44 (0) 7880 435 436
Fax +49 (0) 6051 922010
info@asecos.co.uk

asecos bv
Veiligheid en milieubescherming
Tuinderij 15
NL-2451 GG Leimuiden
Phone +31 172 50 64 76
Fax +31 172 50 65 41
info@asecos.nl

asecos S.L.
Seguridad y Protección del Medio Ambiente
Pol. Ind. CIM Vallés
C/. Calderí, s/n. Oficinas 75-77
ES-08130 - Santa Perpètua de Mogoda
Barcelona (España)
Phone +34 902 300 385 / +34 935 745 911
Fax +34 902 300 395
info@asecos.es

For all other countries please contact:
asecos GmbH
Sicherheit und Umweltschutz
Weiherseldung 16-18
DE-63584 Gründau
Phone +49 60 51 92 20–0
Fax +49 60 51 92 20–10
info@asecos.com

© asecos GmbH 10/2018  No liability can be accepted for printing errors.
The information provided in this brochure has been compiled and checked by us to the best of our knowledge.
Please note, however, that we assume no liability for any errors, mistakes and consequences.
The applicable state legislation has to be observed.
Sources: EN 14470-1, TRGS 510, TRGS 800, TRBS 2152/TRGS720, German Act on Protection Against Hazardous Substances (ChemG), GefStoffV, GGVSEB, GHS/CLP
Pictures: Fotolia LLC, WALDNER Laboreinrichtungen GmbH & Co. KG, asecos GmbH, Wesemann International GmbH, LASEC SA