

The question which hazardous substances are allowed to be stored together in stores as well as bearing sections, is very important for the design of storage places referring to hazardous substances. It is specified in numbers of regulations, laws and technical.

Basically, the following essential requirements have to be met when clustering hazardous substances:

- Hazardous substances may only be stored together if this does not result in a risk increase
- Substances of the same LGK or substances of different LGKs for which separate storage is not required may not be combined as well if this can lead to a substantial risk increase. This is given when the substances, e.g.
 1. require different extinguishing agents,
 2. require different temperature conditions,
 3. react with the formation of flammable or toxic gases or
 4. react with formation of a fire.
- Separated storage is provided when different materials are separated from one another in the same storage section by a sufficient distance or by barriers (e.g. by means of walls, cabinets made from non-combustible material, products of non-combustible substances of LGK 12 or 13) or by storage in separate collecting rooms.
- Separate storage is provided when substances are stored in different storage sections with a fire resistance duration or capability of at least 90 minutes.

As you can see below you will be able to define quickly and clearly the permissibility of clustering concerning the different substances by means of a simplified list. Please have a look at the TRGS 510 for further information on „constrained clustering“.

Overviews of clustering dependent on storage class

Storage class		10-13	13	12	11	10	8B	8A	7	6.2	6.1D	6.1C	6.1B	6.1A	5.2	5.1C	5.1B	5.1A	4.3	4.2	4.1B	4.1A	3	2B	2A	1	
Explosive substances	1	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Yellow
Gases	2A	Yellow	Green	Green	Yellow	Red	Green	Yellow	Red	Red	Red	Red	Red	Red	Red	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Yellow	Yellow	
Aerosols	2B	Green	Green	Green	Green	Green	Green	Red	Red	Red	Green	Green	Green	Green	Red	Yellow	Red	Red	Red	Red	Red	Red	Red	Green	Green		
Flammable liquid substances	3	Yellow	Green	Green	Yellow	Green	Green	Red	Red	Red	Yellow	Green	Red	Green	Red	Red	Yellow	Red	Red	Red	Red	Red	Red	Green			
Other explosive substances	4.1A	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Yellow	Red	Red	Red	Red	Red	Red	Yellow	Yellow				
Flammable solid or desensitized substances	4.1B	Green	Green	Green	Green	Green	Green	Red	Red	Red	Yellow	Green	Red	Yellow	Yellow	Red	Yellow	Red	Yellow	Yellow	Green						
Self-igniting substances	4.2	Yellow	Green	Green	Yellow	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Yellow	Green						
Substances which form flammable gases in contact with water	4.3	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Green							
Intensive oxidizing substances	5.1A	Red	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Green	Green								
Oxidizing substances	5.1B	Yellow	Green	Green	Yellow	Yellow	Green	Yellow	Red	Red	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Green										
Ammonium nitrate and ammonium nitrate containing substances	5.1C	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Yellow											
Organic peroxides and self-reactive substances	5.2	Yellow	Green	Green	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Green												
Combustible acute toxic substances	6.1A	Yellow	Green	Green	Yellow	Green	Green	Red	Red	Red	Green	Green	Green	Green													
Incombustible acute toxic substances	6.1B	Yellow	Green	Green	Yellow	Green	Green	Red	Red	Red	Green	Green	Green														
Combustible toxic or chronic active substances	6.1C	Green	Green	Green	Green	Green	Green	Red	Red	Red	Green	Green															
Incombustible toxic or chronic active substances	6.1D	Green	Green	Green	Green	Green	Green	Red	Red	Red	Green																
Infectious substances	6.2	Red	Red	Red	Red	Red	Red	Red	Red	Green																	
Radioactive substances	7	Red	Red	Red	Red	Red	Red	Red	Yellow																		
Combustible caustic substances	8A	Green	Green	Green	Green	Green	Green																				
Incombustible caustic substances	8B	Green	Green	Green	Green	Green																					
Combustible liquids unless LGK 3	10	Green	Green	Green	Green																						
Combustible solids	11	Green	Green	Green	Green																						
Incombustible liquids	12	Green	Green	Green																							
Incombustible solids	13	Green	Green																								
Other combustible and incombustible substances	10-13	Green																									

- Separate storage required
- Clustering permitted
- Constrained clustering permitted

The concept is based on assigning respective substances to so called storage classes (LGK) apparent from related safety data sheet or is to be determined as per TRGS 510, annex 2. In the overview for each LKG a statement is given, whether clustering with each of the remaining LKG is permitted generally, a prohibition of clustering exists (separate storage is requested!) or a restriction is to be observed (e.g. separate storage is requested when storing in the same storage section).