

Segregation tool

On this page

- › [Using the tool](#)
- › [Compatible goods](#)
- › [Segregation guidance notes for incompatible goods](#)
- › [Compatible goods guidance notes](#)
- › [Other guidance notes](#)

This segregation tool is only a guide and not meant to replace a [safety data sheet](#) (SDS) or a risk assessment.

You should only use the segregation tool for dangerous goods in workplaces where hazardous chemicals are stored.

You should not use the tool for:

- › transport situations where the [ADG code](#) [↗](#) should apply
- › application against open (in use) packages kept on a shelf or bench top within a laboratory, workshop or similar situation.

NOTE: Radioactive materials (class 7) and explosives (class 1) should be deemed incompatible with all other dangerous goods.

Using the tool

1. Identify if the material is a dangerous goods or combustible liquid (a combustible liquid has a flashpoint above 60°C) using the SDS/label.
2. Identify the class, subsidiary risk and packing group (where relevant) of each of the two dangerous goods you intend to store together.
3. Where goods are also combustible liquids this should be regarded as a 'subsidiary risk' for consideration.
4. Use the chart below to ensure that the goods and/or combustible liquids are compatible by aligning where the vertical axis and horizontal axis meet.
5. Check and repeat this process for any subsidiary risks that either of the goods may have.
6. It is recommended that a SDS be consulted to ensure the materials are compatible. Goods with different UN numbers within the same class may be incompatible.
7. Follow directions provided using the [compatibility chart](#) below, checking all guidance notes and supplementary notes.
8. Where goods are incompatible consider greater separation if the packing group is PG I or II irrespective of the symbol used to account for the higher level of danger.

Compatible goods

Two or more goods are compatible provided their interaction does not give rise to any of the following outcomes:

- › Harm to persons, property or the environment.
- › Fire, or explosion, generation of toxic, flammable or corrosive vapours/gases.
- › Accelerate the combustion of other goods/liquids in the event of fire.
- › Release of the contents results in the premature degradation/corrosion of other dangerous goods or combustible liquids' packaging/means of containment.
- › During the event of a fire/spill/release, the interaction of dangerous goods/combustible liquids with incompatible firefighting or dispersal media. Some materials are water reactive and should be stored away from other goods that are reliant on water

or foam as a firefighting/dispersal/suppression media.

Compatibility and segregation chart

The segregation chart is provided to assist you to minimise the risk of storing incompatible goods. It recognises that transport guidelines are not suitable for workplace situations, where larger quantities of goods may be kept together in circumstances that enable better control measures.

Class of goods	2.1	2.2	2.2 SR 5.1	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	8	9	Combustible liquids
2.1	✓ A	✓ B	✗ S1	✗ S1	✗ S2	✗ S2	✗ S4	✗ S5	✗ S2	✗ S4	✗ S1	✗ S1	✓ C	✗ S2
2.2	✓ B	✓ A	✓ B	✗ S1	✗ S2	✗ S2	✗ S4	✗ S5	✓ B	✗ S4	✓ B	✗ S1	✓ C	✗ S2
2.2 SR 5.1	✗ S1	✓ B	✓ B	✗ S1	✗ S2	✗ S2	✗ S4	✗ S5	✗ S2	✗ S4	✓ C	✗ S1	✓ C	✗ S2
2.3	✗ S1	✗ S1	✗ S1	✓ I	✗ S2	✗ S2	✗ S4	✗ S5	✗ S2	✗ S4	✓ C	✗ S1	✓ C	✗ S2
3	✗ S2	✗ S2	✗ S2	✗ S2	✓ A	✗ S3	✗ S4	✗ S5	✗ S2	✗ S4	✗ S3	✓ B	✓ B	✓ B
4.1	✗ S2	✗ S2	✗ S2	✗ S2	✗ S3	✓ A	✗ S4	✗ S5	✗ S2	✗ S4	✗ S3	✓ B	✓ B	✗ S2
4.2	✗ S4	✗ S4	✗ S4	✗ S4	✗ S4	✗ S4	✓ A	✗ S5	✗ S4	✗ S4	✗ S4	✓ B	✓ B	✗ S4
4.3	✗ S5	✗ S5	✗ S5	✗ S5	✗ S5	✗ S5	✗ S5	✓ A	✗ S5	✗ S5	✗ S5	✗ S5	✓ G	✗ S5
5.1	✗ S2	✓ B	✗ S2	✗ S2	✗ S2	✗ S2	✗ S4	✗ S5	✓ D	✗ S4	✓ C	✗ S3	✓ C	✗ S3
5.2	✗ S4	✗ S4	✗ S4	✗ S4	✗ S4	✗ S4	✗ S4	✗ S5	✗ S4	✓ E	✓ CE	✗ S4	✓ CE	✗ S4
6.1	✗ S1	✓ B	✓ C	✓ C	✗ S3	✗ S3	✗ S4	✗ S5	✓ C	✓ CE	✓ A	✓ H	✓ B	✗ S3
8	✗ S1	✗ S1	✗ S1	✗ S1	✓ B	✓ B	✓ B	✗ S5	✗ S3	✗ S4	✓ H	✓ F	✓ C	✗ S3
9	✓ C	✓ C	✓ C	✓ C	✓ B	✓ B	✓ B	✓ G	✓ C	✓ CE	✓ B	✓ C	✓ A	✓ B
Combustible liquids	✗ S2	✗ S2	✗ S2	✗ S2	✓ B	✗ S2	✗ S4	✗ S5	✗ S3	✗ S4	✗ S3	✗ S3	✓ B	✓ A
✓	May be compatible in many cases with exceptions. Follow the compatible goods guidance notes .													
✗	Likely to be incompatible. Segregation strongly recommended, follow the segregation of guidance notes for incompatible goods .													

Segregation guidance notes for incompatible goods

S1

Segregate these goods by 3m or more in a well ventilated area. For liquid dangerous goods the distance is

	measured from the edge of the spill catchment area. See supplementary notes 6 and 7
S2	Segregate by 5 m or more. If one of the dangerous goods is a liquid, measure the distance from the edge of the spill catchment area. Liquid dangerous goods should be located within a separate spill catchment area. See supplementary notes 6 and 7
S3	Segregate by 3 m or more for PG III goods and 5m or more for PG II, PG I goods or where the goods may react dangerously. If both are solids then a minimum of 1m separation may be used. Where one of the goods is a liquid the distance is measured from the edge of the spill catchment area. See supplementary notes 6 and 7
S4	Segregation preferred by the use of fire-rated partitioned areas. Consider use of separate detached building for organic peroxides and for highly pyrophoric class 4.2 goods
S5	Segregation of class 4.3 preferred by use of a separate, detached building without water based fire suppression system

Compatible goods guidance notes

A	In most cases materials of the same class will be compatible. However, not all materials with different UN Numbers will always be compatible. The SDS should be checked
B	In many cases the goods will be compatible. Must check for subsidiary risk compatibility and the SDS
C	If one of the goods present is also a fire risk substance (one of class 2.1, 3, 4, 5, a combustible liquid or has a subsidiary risk of one of these) or elevated temperature goods, segregation is required by at least 3 m or more. Sub-risk MUST be considered. Other exceptions apply. Check the SDS
D	Not all class 5.1 goods are compatible as follows: <ul style="list-style-type: none"> ➤ Ammonium nitrate is not compatible with tetranitromethane, dichloroisocyanuric acid, any bromate, chlorate, chlorite, hypochlorites, or chloroisocyanurate, or any inorganic nitrate. ➤ Calcium hypochlorite (and its mixtures) are incompatible with dichloroisocyanuric acid, ammonium nitrate, or any chloroisocyanurate
E	Organic peroxides are highly reactive materials. Please check the SDS to ensure compatibility
F	Where one of the goods to be stored together is a concentrated strong acid and the other a concentrated strong alkali, they should be deemed incompatible
G	Class 4.3 goods must not be stored next to goods that are in a solution containing water, or where water or foam is the chosen firefighting/spill/leak dispersal or suppression media for the storage area
H	Except where the class 6.1 is cyanide and the class 8 an acid. Check the SDS
I	Toxic gases ammonia and chlorine must be segregated due to risk of explosion. It is important to refer to the SDS for incompatibilities within this class division. It is strongly recommended that each different toxic gas (Class 2.3) be segregated unless information in the SDS says otherwise

Other guidance notes

- **Class 2 dangerous goods** (i.e. gases) are generally not recommended to be stored with any other class of dangerous goods particularly flammable dangerous goods due to the risk of flame impingement and overpressurisation of cylinders. Corrosive goods can cause corrosion damage to the gas cylinder walls and thus should be kept away from class 2. In a fire situation, gas cylinders need to have copious quantities of water applied to keep them cool. Toxic gases are stored away from other gases to minimise the release of toxic gases in a fire with other gases.
- **Class 6.1 dangerous goods** are not recommended to be stored with fire risk goods or gas cylinders. In the event of a fire, the toxic material will be liberated and may be spread more effectively due to the heat of the fire or explosion of gas cylinders.
- Two or more goods within the same class with incompatible subsidiary risk should be kept apart.
- The packing group (PG) of dangerous goods denotes the magnitude of danger the material poses from its hazard. PG I is most dangerous. PG II these are more dangerous than PG III. If one of the incompatible materials is a PG I or II dangerous goods it is recommended that a greater segregation distance or other means of segregation is employed.

- If **class 4.3 dangerous goods** are stored or handled care needs to be taken to segregate these away from all containers of aqueous (water containing) solutions even if the solutions are not dangerous goods. The areas these materials are stored in must not be serviced by a water based fire suppression system.
- If one of the incompatible goods is a liquid OR a solid that is likely to melt from the heat of a fire, separate spill catchment systems or means of separating the incompatible goods must be considered. Solid dangerous goods should not be stored in direct contact with floor surface to avoid contact with liquids.
- Fire rated walls constructed of appropriate impervious, chemically resistant materials may be used if provided with an FRL of 240/240/240. Timber structures are not appropriate barriers.
- In the case of incompatible gases in cylinders intended for use in welding (such as acetylene and oxygen), these gases may be stored together in a purpose built cradle and separated when not in use for extended periods of time.
- **For oxidizing agents:** Although only dangerous goods and combustible liquids feature in the compatibility chart care must also be taken to segregate oxidizers from those dangerous goods and other materials that are combustible in nature (e.g. polymeric beads, cotton bales, excess packing materials). Chlorine and some other halogens are considered potent oxidizers even though their class and assigned with any oxidizing agent subsidiary risk under the dangerous goods classification system.

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