



# THE WORLD OF DANGEROUS GOODS



When it comes to the carriage of dangerous goods, a sound knowledge of how to ensure transport safety is a must for all players in the supply chain. In order to support the development of better road safety in our industry, GPCA is proud to start a series of articles comprising of important basics for a safe start into the world of dangerous goods.

It will be circulated bimonthly and is freely available for download to all interested parties via the GPCA and Gulf SQAS websites. As both feedback and proposals for further topics are most welcome, we would be delighted to hear from you via [gulfsqas@gpca.org](mailto:gulfsqas@gpca.org).

## Defining Dangerous Goods

Starting at the very beginning, this first issue will address one of the most fundamental questions regarding dangerous goods - how to define them properly. If one poses this question it is often seen that even though almost everybody has some idea of what dangerous goods are all about, most people are rather unsure about a precise definition. After all, a great many products we come into contact with regularly can be harmful to our health or to the environment if we use them without taking proper safety precautions. But are all of these substances dangerous goods?

The question is far trickier than it appears. According to the common definitions, dangerous goods are articles or materials capable of posing significant risk to people, health, property or the environment when transported. Even though the definition's wording is fairly generic, it gives away a crucial clue: when it comes to dangerous goods' regulations, everything revolves around the carriage! Consequentially only substances and items harbouring risks during transportation are dangerous goods.

## Practical

What does that mean in practice? Let's take a cleaning agent from the local supermarket for example: its packaging probably carries warning signs and some information describing the nature of the hazard as well as the action to be taken if the substance is accidentally spilled or swallowed. We have to be aware that these symbols only relate to the hazards in the use of the product and due to the fact that the classification criteria for dangerous goods and hazardous substances are not identical, that does not automatically mean that our cleaning agent is also dangerous during transport.

Hence we need to determine a way to find out whether a substance or object poses a risk during transport to identify it as a dangerous good. Again, a practical example will lead us onto the right path: Petrol (or gasoline for those who prefer the American term) is one of the most well-known dangerous goods. Its vapours are highly flammable, leading to violent combustion when ignited, which undoubtedly poses significant risks during transportation.

It indeed belongs to the flammable liquids, which fall under class 3 of the dangerous goods classification scheme. Knowing now that our dangerous good petrol is a flammable liquid, we could ask ourselves, whether all flammable liquids are consequently dangerous goods. Taking a glance at our general definition, one might be tempted to say yes, after all, the risk of fire is a serious threat and thus fits our initial assumption. But this is certainly not the case, because otherwise products like cooking oil would also have to be declared as dangerous goods.

## Classification Criteria

So there have to be additional categorization options, regulating if and in which cases a substance or item becomes a dangerous good. Specialists call those options "classification criteria". In the case of flammable liquids, the key property for classification is the flashpoint; it describes the lowest temperature at which a volatile liquid emits sufficient quantities of vapour, resulting in an ignitable vapour-air-mixture above the liquid. Substances and mixtures which have a flashpoint lower than 60 degrees Celsius are classified as dangerous goods. To come back to our comparison: standard cooking oil has a flashpoint of 230 degrees Celsius.

In summary, we should keep the following in mind: not every hazardous substance is necessarily a dangerous good, only substances and items bearing a risk for transport and meeting the classification criteria of the international dangerous goods regulations are classified as such.

## UN-Numbers

To make sure that dangerous goods can be internationally recognized, the so-called UN-Numbers were developed. They consist of the letters "UN" as abbreviation for United Nations and a four-digit code, identifying the dangerous substance or substance group. For example UN 1203 is allocated to petrol, while UN 2218 identifies acrylic acid. The usage of a number-based identification system bears tremendous advantages: firstly the uniform codes are unambiguous all over the world and secondly the UN-Numbers are much easier to work with than complicated chemical or trade names. As a specific UN-Number has to exist for each dangerous good, the presence of a UN-Number is the quickest and most convenient way to check, if a substance or item is classified. The UN-Number can be found in Chapter 14 of each Safety Data Sheet and has to be shown on packaging and transportation documents as well.

In addition to the UN-Number each dangerous good can be described in detail by substance-specific classification information; our next issue will provide an overview about both the classification scheme and how to characterize hazardous cargo for carriage.

If you're interested in the carriage of dangerous goods, why don't you join us for the GPCA Carriage and Security of Dangerous Goods Workshop taking place on the 2nd and 3rd of September at the Taj Hotel Dubai, UAE. Learn more about the scope of the international DG regulations and gain valuable insights about implementing transport safety measures during the hands-on presentations and panel discussions. For more information or to register, please contact Ms Ammara Shahiryar on 4510666 009714 Ext 102 or on [ammara@gpca.org.ae](mailto:ammara@gpca.org.ae).

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It's not just about chemicals: we come across dangerous goods in numerous industries, such as agriculture, automotive or energy to name a few.



Not only substances or mixtures can be classified, but also items harbouring dangerous properties. Best example: Lithium Batteries, UN 3480.

