

Identifying dangerous goods

Identifying dangerous goods is critical for safe transport and legal compliance. Here are some methods to help determine if goods may be dangerous:

Look for Dangerous Goods Marks and Labels

Check all packages for dangerous goods labels and markings before handling:

- Hazard labels - Diamond-shaped labels with symbols, colours, and class numbers (see Annex A for examples)
- Handling labels - Rectangular labels with special instructions like "Cargo Aircraft Only" or "Keep Away from Heat"
- UN markings - Four-digit UN numbers (e.g., UN1203, UN3480) with proper shipping names
- Battery marks - Special markings for lithium or sodium batteries and battery-powered equipment

If you see any dangerous goods labels or markings, STOP - these goods require special handling and documentation.

Check Product Descriptions Against Hidden Dangerous Goods List

Many dangerous goods are "hidden" behind general product descriptions. The hidden dangerous goods list (Annex C) provides examples of general product categories that commonly contain dangerous goods. This list is not exhaustive - use it as a starting point to identify potential risks.

- Review shipping documents - Look at product names, descriptions, and categories on invoices, packing lists, and shipping documents
- Look beyond general descriptions, focus on high-risk categories:
 - Electronic equipment (lithium batteries are very common)
 - Automotive parts (frequently contain multiple hazards)
 - Chemicals and laboratory supplies (often regulated)
 - Medical/pharmaceutical products (various classifications possible)
 - Ship spares (may contain explosives, compressed gas, paints, batteries, and other dangerous goods)
- Request detailed product specifications - When shipping documents only show general descriptions, ask the shipper for:
 - Detailed product specifications
 - Complete ingredient lists for chemicals
 - Technical data sheets
 - Manufacturer's product information
- Cross-reference specifications with dangerous goods criteria - Compare detailed product information against the 9 classes of dangerous goods to determine if items meet classification criteria

If shipping documents show general descriptions matching the hidden dangerous goods categories, stop processing and obtain detailed product specifications before

proceeding. Verify these specifications against the 9 dangerous goods classes to determine proper classification.

Review GHS Pictograms on Chemical Containers

Packaging of articles and substances marked with GHS pictograms may suggest that the contents are classified as dangerous goods when transported by air. For chemical products, look for diamond-shaped GHS pictograms on labels:

GHS symbols may resemble transport hazard labels (see Annex B). Key pictograms to watch for:

- Flame symbol (flammable materials)
- Corrosion symbol (corrosive substances)
- Skull and crossbones (toxic materials)
- Exploding bomb (explosive materials)

Request Safety Data Sheet When Uncertain

A Safety Data Sheet (SDS), also known as Material Safety Data Sheet (MSDS), contains information on the classification of dangerous goods based on their hazardous characteristics, for the purposes of transportation by air. When other methods don't provide clear answers:

- Request SDS from shipper, supplier, or manufacturer
- Check Section 14 - Transport Information for:
 - UN number and proper shipping name
 - Transport hazard class
 - Packing group (if applicable)

Safety Data Sheets may contain errors or outdated information, so always verify their accuracy before making dangerous goods decisions:

- Ensure the SDS is current and matches your exact product, with all 16 sections complete (especially Section 14 for transport information), and verify it comes directly from the manufacturer or authorised supplier rather than third-party sources.
- Compare SDS details with actual product labels and markings on the packaging, and verify that the transport information in Section 14 aligns with hazard information in other sections (especially Sections 2 and 9).
- When uncertain, contact the manufacturer directly for clarification, and remember that SDS primarily applies to chemical substances rather than equipment or devices (though some manufacturers may provide SDS for articles like lithium batteries).
- Be cautious of SDS with missing transport information, contradictory hazard details, outdated content, or those obtained from unofficial sources.

Other identification methods may include:

- Physical inspection - Look for signs of leakage, unusual odours, or damage
- Supplier/manufacturer consultation - Contact directly for product classification
- Industry knowledge - Use experience with similar products and shipments
- Professional assessment - Consult dangerous goods experts when needed

**When in doubt, always treat items as dangerous goods until confirmed otherwise.*









Annex A - Dangerous Goods Marks and Labels

Below are the labels used to identify the hazard class or division of a dangerous good when transported by air and are the primary means of identifying dangerous goods by ground staff and air crew.













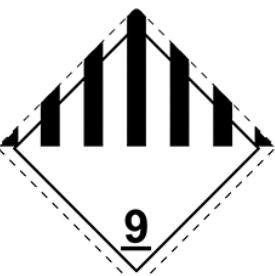

Some dangerous goods may have more than one hazardous characteristic. Each such hazard must be clearly marked and labelled on the packaging for air transportation. For some dangerous goods, ICAO Technical Instructions also require handling labels and/or other markings to be affixed.

The different types of hazard labels, markings and handling labels are illustrated below.¹




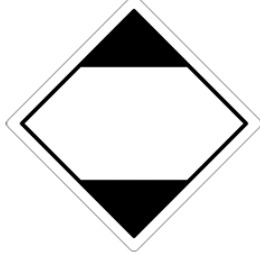
Hazard Labels

			
Explosives Division 1.1 to 1.3	Explosives Division 1.4	Explosives Division 1.5	Explosives Division 1.6
			
Flammable Gas Division 2.1	Non-Flammable, Non-Toxic gas Division 2.2	Toxic Gas Division 2.3	Flammable Liquid Class 3

¹ Source: ICAO DOC 9284 Technical Instructions for the Safe Transport of Dangerous Goods by Air

			
Flammable Solids Division 4.1	Substance Liable to Spontaneous Combustion Division 4.2	Substance which, on contact with water, emit flammable gas Division 4.3	
			
Oxidizing substances Division 5.1	Organic peroxide Division 5.2	Toxic Substances Division 6.1	Infectious substances Division 6.2
			
Radioactive material Category I, White Class 7	Radioactive material Category II, Yellow Class 7	Radioactive material Category III, Yellow Class 7	Radioactive material Fissile Class 7
			
Corrosive Substance Class 8	Miscellaneous Class 9	Lithium Batteries or Sodium Ion Batteries Class 9	

Markings

 <p>*Place for UN number(s)</p>			
Battery	Environmentally Hazardous Substance	Limited Quantity for Air Transport	Limited Quantity for Surface Transport

Handling Labels

			
Cargo Aircraft Only	Radioactive Material – Excepted package	Magnetized Material	
			
Cryogenic Liquid	Keep Away from Heat		

In addition to taking reference from these marks and labels, shippers and freight forwarders should check the information on the relevant Safety Data Sheet to confirm the classification and handling of such dangerous goods when transported by air.




Annex B – Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

GHS is an international system developed by the United Nations to standardise the classification of chemicals and to communicate their inherent hazards to users. Under the system, chemical manufacturers and suppliers are required to label all chemical containers or receptacles with the appropriate diamond-shaped GHS pictogram labels, based the hazards posed by the chemical substances.







Several GHS pictograms contain symbols that largely resemble those found on hazard labels used in air transportation, which suggest that the substances may be classified as dangerous goods. Other GHS pictograms communicate hazards that are only applicable to chemical users but not to transportation.

In addition to taking reference from GHS pictograms, shippers and freight forwarders should check the information on the relevant [Safety Data Sheet](#) to confirm if the substance should be classified as a dangerous good when transported by air.

The various GHS pictograms are shown below.²

Pictogram	Pictogram Name	Hazardous nature/ effects of content	May indicate that the content of the package are dangerous goods of the following class:
	Explosive	Explosives Self-reactive substances & mixtures	Class 1 - Explosives
	Gases Under Pressure	Pressurised content	Division 2.2 – Non-flammable, non-toxic gas Division 2.3 – Non-toxic gas
	Flammable	Flammable gases, aerosols/ liquid / solids Self-reactive substances & mixtures Pyrophoric liquids & solids Self-heating substances & mixtures Substances & mixtures, which in contact with water, emit flammable gas	Division 2.1 -Flammable gas Class 3 – Flammable liquid Class 4 – Flammable solid

² Source: Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Manual

Pictogram	Pictogram Name	Hazardous nature/ effects of content	May indicate that the content of the package are dangerous goods of the following class:
	Oxidizer Organic Peroxide	Oxidizing gases Oxidizing liquids Oxidizing solids Organic peroxide	Division 5.1 – Oxidizing substances
	Corrosive	Corrosive to metal Cause skin corrosion Cause serious eye damage	Class 8 - Corrosives
	Toxic	Acute toxicity, when in contact with skin, ingested or inhaled.	Class 6 – Toxic and infectious substances
	Aquatic Toxicity	Acute aquatic toxicity Chronic aquatic toxicity	Class 9 – Miscellaneous -Environmentally hazardous substances
	Harmful	Harmful when in contact with skin, ingested & inhaled Cause skin irritation Cause eye irritation Cause respiratory tract irritation Narcotic effects Cause skin sensitisation	None
	Respiratory	Cause respiratory sensitisation Carcinogenicity Reproductive toxicity Specific target organic systemic toxicity single exposure Specific target organic systemic toxicity repeated exposure Aspiration hazard Germ cell mutagenicity	Class 6 – Toxic and infectious substances

The following are some examples of GHS pictograms found on containers, receptacles or packages containing chemical substances.



Annex C – Sample of a Safety Data Sheet (SDS)

A typical SDS contains information divided into 16 sections.

Section 14 of the SDS - Transport Information, contains the following essential information that would identify the substance/item as a dangerous good when transported by air:

- UN number
- UN proper shipping name
- Transport hazard class
- Packing group (if applicable)
- Special precautions when transporting the substance/item

An SDS is often used to identify dangerous goods when there is no clear identification on the packaging. As such, when uncertain if certain items should be classified as dangerous goods, shippers and freight forwarders may contact the supplier/manufacturer for confirmation, or request a copy of the SDS for further information.

Shippers and freight forwarders should request a copy of the SDS from the supplier or manufacturer of the substance/item to verify if it should be classified as a dangerous good.

Sample SDS

Safety Data Sheet	
Sulphuric Acid 50%	
Document number: S/2282/SA5	Revision Date: 12 January 2021
Section 1: Identification	
Product Identifier	
Trade name:	Sulphuric Acid 50%
Product code:	
Recommended use and restriction on use	
Recommended use:	For industrial purposes
Restriction of use:	Do not mix with oxidising agents
Details	
Section 14: Transport information	
UN-Number	UN1830
UN proper shipping name	Sulphuric acid
Transport hazard class(es)	Class 8
Packing group	II
Environmental hazards	
Marine pollutant:	No
Special precautions for user	
Warning:	Corrosive
Hazard identification no. (Kemler code):	Xn
EMG Number:	1830
Segregation groups:	
Section 15: Regulatory information	
Section 16: Other information	