

**Vägtrafikinformatik – Hantering och övervakning  
av fordonsflottor och godstransporter –  
Datadefinitioner och meddelandeuppsättningar  
för elektronisk identifiering och övervakning av  
transport av farligt gods (ISO 17687:2007, IDT)**

**Transport Information and Control Systems  
(TICS) – General fleet management and  
commercial freight operations – Data dictionary  
and message sets for electronic identification  
and monitoring of hazardous materials/dangerous  
goods transportation  
(ISO 17687:2007, IDT)**

Den internationella standarden ISO 17687:2007 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 17687:2007.

The International Standard ISO 17687:2007 has the status of a Swedish Standard. This document contains the official English version of ISO 17687:2007.

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17687 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

## Introduction

This International Standard supports the automated identification, monitoring and exchange of emergency response information regarding dangerous goods carried on board road transport vehicles. Such information may include the identification, quantity and current condition (such as pressure and temperature) of such goods, as well as any relevant emergency response information. Reporting this information may occur prior to or during transportation of the goods in a manner that allows all interested parties to access and interpret the information correctly. When equipped with appropriate electronics and communications capabilities, vehicles carrying dangerous goods may respond to queries regarding their status or self-initiate a message.

This International Standard does not specify nor even imply that any particular on-board or off-board systems should be capable of performing such monitoring, data retention or communications. However, where such capability does exist, then this International Standard does apply. This International Standard does not intend to affect any country's laws and regulations regarding dangerous goods transportation, but offers means to electronically support emergency response practices by providing a standard for electronic identification and monitoring messages.

The provisions of this International Standard cover four contextual situations:

- a) general requirements;
- b) on-board systems;
- c) roadside recipient to emergency control centres;
- d) emergency control centres to emergency control centres.

It is intended that the information defined here be carried on board the transport vehicle and may then be transferred to interested roadside systems by whatever communications means are appropriate to that roadside system.



# Transport Information and Control Systems (TICS) — General fleet management and commercial freight operations — Data dictionary and message sets for electronic identification and monitoring of hazardous materials/dangerous goods transportation

## 1 Scope

This International Standard supports the application of automated identification, monitoring and exchange of emergency response information regarding dangerous goods carried on board road transport vehicles. Such information may include the identification, quantity and current condition (such as pressure and temperature) of such goods, as well as any relevant emergency response information. When equipped with appropriate electronics and communications capabilities, vehicles carrying dangerous goods may respond to queries regarding their status or self-initiate a message.

The information defined here, electronically carried on board the road transport vehicle, may be transferred to interested roadside systems by whatever communications means are appropriate to that roadside system. The primary intent of this International Standard is not trade, economic or commercial, but to help save lives by facilitating emergency response. This International Standard supports local on-site needs in the same manner as conventional visual placards do, but with an optional, complementary, enhanced and more versatile electronic version.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

The reader is advised to pay careful attention to 5.5, "Important implementation recommendation".

ISO/IEC 8824 (all parts), *Information technology — Abstract Syntax Notation One (ASN.1)*

ISO/IEC 8825 (all parts), *Information technology — ASN.1 encoding rules*

ISO 14817, *Transport information and control systems — Requirements for an ITS/TICS central Data Registry and ITS/TICS Data Dictionaries*

IEEE 1512.3, *IEEE Standard for free hazardous material incident management message sets for use by emergency management centers*

NFPA 704, *Identification of the Free Hazards of Materials for Emergency Response*

SAE J2313, *On-board land vehicle mayday reporting interface*

SAE 2540.ITIS, *ITIS phrases list*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

- 3.1**  
**address**  
data element designating the originating source or destination of data being transmitted
- 3.2**  
**automatic equipment identification**  
**AEI**  
process of identifying equipment or entities that uses the surface transportation infrastructures by means of on-board equipments (OBEs) combined with the unambiguous data structure defined in this International Standard
- NOTE Within this series of standards, "equipment" indicates large equipment that is carried in, or forms an integral part of, a trailer or trailer mounted unit.
- 3.3**  
**air interface**  
conductor-free medium between an OBE and the reader/interrogator through which the linking of the OBE to the reader/interrogator is achieved by means of electro-magnetic signals
- 3.4**  
**ASN.1**  
abstract syntax notation (number) one, as defined in ISO 8824 and ISO 8825
- 3.5**  
**automatic vehicle identification**  
**AVI**  
process of identifying vehicles using OBE, a subset of AEI
- 3.6**  
**compatibility**  
ability of two or more items or components of equipment or material to exist and/or function in the same system or environment without modification, adaptation or mutual interference
- 3.7**  
**container**  
receptacle for the transport of goods, especially one readily transferable from one form of transport to another
- 3.8**  
**consignee**  
receiver  
party to which goods are consigned
- 3.9**  
**consignment**  
separately identifiable amount of goods items available to be transported from one consignor to one consignee via one or more modes of transport and specified in one single transport document
- 3.10**  
**dedicated short-range communication**  
means of effecting local (short-range) transactions between fixed equipment and OBE(s) using an "air interface" comprising inductive or propagated signals between the fixed equipment and OBE(s)
- 3.11**  
**diamond ratings**  
(slang, see NFPA 704)



**3.12****goods provider**

party that provides the goods for transport

NOTE Transportation documents carry more precise terms such as consignor, shipper and sender, which are defined as, "party which, by contract with a carrier, consigns or sends goods with the carrier or has them conveyed by him".

**3.13****hazardous materials identification system****HMIS**

North American product labelling system developed by the national paint and coatings association (NPCA) and similar in many respects to the NFPA 704 system

NOTE HMIS labels always appear as a rectangle-shaped block of four colour bars with a blue "health" bar on top, a red "flammability" bar below that, followed by a yellow "reactivity" bar and a white "PPE" bar. At times there may be additional space on the label for other information, including product name, supplemental warnings, manufacturer information or additional information. HMIS is touted by its owner as "designed to aid employers and their employees in day-to-day compliance with OSHA's hazard communication standard." The rating criteria used for categories of flammability and reactivity is identical to that used by NFPA 704. The ratings in the health category differ as HMIS is also concerned with chronic as well as acute health hazards. The presence of an asterisk indicates a chronic health hazard. Recently, the label was redesigned to give the asterisk a box of its own on the label. In older labels (which are expected to be prevalent for many years), the mark is combined with the numerical rating value.

**3.14****item**

item of goods to be moved

NOTE An item may be a single unit, such as a letter, a bundle or box of units or other units that will be bundled into a receptacle which will be carried in equipment (such as an ISO intermodal container) as a subcomponent of an AEI item. Items are not defined in this family of standards and are defined by the standards of ISO/IEC Subcommittee SC 31, *Automatic identification and data capture techniques*.

**3.15****international traveller information systems****ITIS**

term commonly associated with the standard for incident phrases developed by the SAE ITIS committee in conjunction with ITE TMDD and other standards

NOTE This work contains a wide variety of standard phrases to describe incidents and is expected to be used throughout the ITS industry. The codes found there can be used for sorting and classifying types of incident events, as well as creating uniform human-readable phrases. In the capacity of classifying incident types, ITIS phrases are recommended for use in many areas. ITIS phrases can also be freely mixed with text and used to describe many incidents.

**3.16****journey**

physical movement of goods from the goods provider to the receiver

**3.17****load**

that which is to be transported from the goods provider to the receiver

NOTE A load comprises the dangerous goods, packages, pallets and/or containers.

**3.18****load unit**

package

container

cargo transportation unit which may be loaded on a transport means

**SS-ISO 17687:2007 (E)****3.19  
manifest**

document/message specifying the contents of particular freight containers or other transport units, prepared by the party responsible for their loading into the container or unit

**3.20  
NFPA 704**

as used in this International Standard, referring to the four-diamond legend found on buildings and objects, which reflects the hazard degree of the contents.

NOTE Properly called NFPA (National Fire Protection Association) diamonds and based on the 704 standard developed by the NFPA, these symbols are used to provide a gross indication of flammability, instability and other data. They are similar in intent to the class-divisions numbering found on dangerous goods placards and labels. The four sections contain ratings (ranging from one to four with four as the most severe) as follows:

- The upper triangle (red) is the fire hazard and flash point rating.
- The left triangle (blue) is the health hazard rating.
- The right triangle (yellow) is the reactivity rating.
- The lower triangle (white) is used to reflect any specific hazard indication.

**3.21  
NFPA diamond**  
see NFPA 704**3.22  
on-board equipment  
OBE**

device on board or attached to the vehicle/equipment to perform the functionality of AVI/AEI

**3.23  
package**

load unit  
container

discrete individual containers which may be accumulated in a larger package

**3.24  
packed encoding rules  
PER**

standardized determination of data encoding to conform to the requirements of ISO 8824 ASN.1 data notation.

NOTE 1 The packed encoding rules are given in ISO 8825.

NOTE 2 There are alternate forms of encoding, such as basic encoding rules (BER). Within ITS standards, reference to ASN.1 also implies the use of packed encoding rules as specified in ISO 8825.

**3.25  
pallet**

wooden, plastic or metal platform that enables a bundle of goods to be moved around by a fork-lift truck or similar platform-moving device that will be carried in equipment (such as an ISO intermodal container) as a subcomponent of an AEI item

NOTE Pallets may be referred to but are not defined in this family of standards; they are defined by the standards of ISO/IEC Subcommittee SC 31, *Automatic identification and data capture techniques*.

**3.26****placards**

graphic warning devices designed to give the hazard class or division of the dangerous goods carried in a vehicle or railroad car

NOTE There are different placards for each class or division. Placards are colour coded and are at least 10,8 in (273 mm) on a side and must be displayed on all four sides of the vehicle. Placards display the hazard class number in the bottom corner. Some vehicles are required to display more than one placard; some will display three or more.

**3.27****reader**

device that communicates with the OBE to read or write the information defined in this International Standard

NOTE The reader may then add time and location or other data and transfer the data to an application manager, which may reside at another location, such as an emergency control centre.

**3.28****receptacle**

single unit, or a carrier of items and of smaller packets and items

NOTE A receptacle will normally take the form of a bag, box or roller cage that will be carried in equipment (such as an ISO intermodal container) as a subcomponent of an AEI item. Packets are not defined in this family of standards and are defined by the standards of ISO/IEC Subcommittee SC 31, *Automatic identification and data capture techniques*.

**3.29****transport**

within the context of AVI and DG, the vehicles used to move a consignment from the goods provider to the receiver or returnables back through the system

**3.30****transport documentation**

shipping papers

shipping documents

legal and commercial documents that accompany the transport means during a journey

**3.31****transport means**

vehicle used for the transport of goods, e.g. a vessel, train, aeroplane or road vehicle

NOTE These include vehicles, trailers, vessels, aircraft, or combination thereof, to perform the journey to deliver the consignment to the receiver or return returnables, together with the driver/pilot/crew physically conducting the journey.

**3.32****transport unit**

combination of the load, transport means and transport documentation

NOTE This includes the modes of transport as well as the containment or storage systems used for the dangerous goods. A transport unit is an item that is separately identified. A transport unit may include or contain other transport units, examples being a road vehicle as a transport unit and multiple pallets loaded onto the road vehicle, each pallet being its own transport unit.

**3.33****user**

vehicle/equipment or person carrying the OBE through the point of identification with the objective of unambiguous identification of the OBE being carried

**3.34****workplace hazardous materials information system****WHMIS**

Canadian government regulation equivalent to the OSHA standard hazard communication standard (HCS) in the United States