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LISTING, CLASSIFICATION AND PACKING

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Transport of Nitroguanidine, wetted (UN 1336) in flexible IBCs

Transmitted by the International Council of Chemical Associations (ICCA)

Background

NITROGUANIDINE (PICRITE), WETTED with not less than 20 % water, by mass (UN 1336) is a solid desensitized explosive and is classified in division 4.1, PG I.

If the substance is wetted with less than 20% of water, it gets classified (as UN 0282) as an explosive of Class 1, division 1.1, compatibility Group D.

Currently Nitroguanidine, wetted (UN 1336) may be packed (in accordance with packing instruction P406) in combination packagings as well as in plastics, plywood, fibreboard or metal drums, etc.

Neither in the UN Model Regulations nor in the modal regulations is there a packing instruction that allows UN 1336 to be packed and transported in IBCs.

Introduction

At the request of industry, the Competent Authorities of Germany have issued a number of national derogations for the packing and the transport by rail and road of Nitroguanidine, wetted (UN 1336) in flexible plastics IBCs (code 13H3 – woven plastics with liner). Each derogation is granted to an individual company that is requesting it.

The following derogations have been granted:

Ref	Road/Rail	Company	Issued	Valid till
E 3/93	Rail/Road	NIGU Chemie - Waldkraiburg	1993	31-3-2007 (renewed)
21/00	Road	Dynamit Nobel - Troisdorf	2000	31-8-2005
130/02	Road	Bayer - Leverkusen	2002	31-8-2005

All these derogations specify that, on top of all the standard provisions, already applicable for solid desensitized explosives of class 4.1, the following additional conditions have to be met:

- the IBC must conform to the packing group I performance level;
- the maximum volume of the IBC may not exceed 1500 l;
- the net mass of the substance may not exceed 1000 kg;
- the IBC must be hermetically sealed so that the water content cannot drop below 20%;
- the IBC must have an additional protection e.g. a lattice box pallet;
- no mixed loading with other substances is allowed;
- the transport must be carried out in closed vehicles.

On request of the company Dynamit Nobel, the German institute BAM (Bundesanstalt für Materialforschung und -prüfung) carried out tests in 1996 and confirmed (ref Tgb.-Nr.II.2-01/96) that the product could be safely transported, provided the above mentioned conditions were met.

In compliance with these national derogations Nitroguanidine, wetted, (UN 1336) in flexible IBCs has been safely transported in Germany by rail (approximately 100 transports/year) and by road (approximately 150 transports/year).

As Nitroguanidine, wetted, is produced worldwide there is a demand to formally allow the transport of this substance as UN 1336 in flexible IBCs, by road and by rail only, by including appropriate provisions in the UN Model Regulations.

However recent investigations have shown that, although the average percentage of the diluent remains above the minimum percentage of 20%, there is the danger that the diluent does not remain homogeneously distributed over the entire Nitroguanidine and that this separation could reduce the inerting effect. Therefore the German Authorities now require that each material be tested and approved before it is allowed for transport in flexible IBCs.

It is therefore necessary that this aspect should be fully taken into consideration, when classifying Nitroguanidine, wetted, as a substance of Division 4.1. The most appropriate way is to amend SP28, which applies to 26 of the 33 similar substances listed in 2.4.2.4.1, accordingly.

In the case of the proposed transport in flexible IBCs of Nitroguanidine, wetted, in amounts up to 1000 kg, it is further recommended ~~to include a statement in the transport document and~~ to have the shipment accompanied by a copy of the authorisation by the competent authorities.

Proposal

1. Insert the following new Packing Instruction IBC4xx and new Special Packing Provision Bxx in subsection 4.1.4.2 (Packing instructions concerning the use of IBCs)

IBC4xx	PACKING INSTRUCTION	IBC4xx
This instruction applies to UN 1336.		
The substance shall not be transported in IBCs unless authorized by the competent authority. If so, the following IBCs are authorized, provided the general provisions of 4.1.1 , 4.1.2 and 4.1.3 are met: Flexible IBCs (13H3, 13H4, 13H5, 13L3, 13L4) conforming to the packing group I performance level.		
Additional requirements:		
<ol style="list-style-type: none"> 1. The IBCs shall be designed and constructed to prevent the loss of water<u>hermetically sealed</u> 2. FlexibleThe IBCs shall be <u>packed so as to prevent friction between each other and the wall of the conveyance placed in a protective frame e.g. a lattice box pallet.</u> 3. <u>The type of IBC and maximum permitted quantity per IBC are limited by the provisions of 2.1.3.5. A copy of the approval according to 2.1.3.5 should accompany each consignment.</u> 34. The maximum net mass shall be 1000 kg. 4. The maximum volume shall be 1500 l. 		
Special packing provision:		
B13 Transport by sea in IBCs is prohibited		
Bxx IBCs shall be transported in closed transport units		

2. Add IBC4xx in column 8, and B13 and Bxx in column 9, of the Dangerous Goods List for UN 1336.

~~3. Add~~

~~“5.4.1.5.x Solid desensitized explosives~~

~~When solid desensitized explosives are transported under conditions where authorisation by the competent authority is required (see 4.1.4.2 IBC4xx), a statement to this effect shall be included in the dangerous goods transport document. A copy of the approval and conditions of transport shall be attached to the dangerous goods transport document.”~~

~~4.3.~~ Amend SP28 as follows:

~~“This substance may be transported under the provisions of Division 4.1 only if it so packed that the percentage of diluent will stays homogeneously distributed over the substance and its percentage does not fall below that stated, at any time during transport (see 2.4.2.4)”~~

The segregation provisions for each particular mode of transport shall be based on the principles of subsection 7.1.2.3

Explanatory note to changes

The reference to the need for an authorisation by the competent authority has been moved from heading of the packing instruction into the new additional requirement 3. Similarly like for P406 reference is made to 2.1.3.5, which includes provisions for the limitation of the type of IBC and its permitted quantity and requires the performance of Test Series 6. A copy of the approval by the Competent Authorities, accompanying the transport document, will help to ensure that the requirements of 2.1.3.5 have been met for this consignment.

The range of possible IBC types has been extended as these types could provide a same protection, provided of course that the additional requirements are met

The requirement for the IBC to conform to PG I performance level, although mentioned in the German derogations, has been removed as UN 1336 is PG I anyway (and so are all other desensitised explosives of division 4.1)

The mention of hermetical sealing has been replaced by a more appropriate wording, similar to the one which is used in packing instruction P406

The reference to a “protective frame e.g. a lattice box” has been substituted by a more general requirement for flexible IBCs, which clearly defines what the purpose of this protection should be: minimise the risk of perforation.

There is no need to specify the need for a maximum volume as this limit will always be met by the more restrictive limit on the maximum mass.

Justification

Nitroguanidine, wetted, (UN 1336) has been transported in Germany in flexible IBCs for 12 years in closed vehicles over more than 1,000,000 km by rail and by road without a single accident. Therefore it is believed that this transport, if complying with the proposed additional requirements, can be considered as safe.

Below are a few pictures showing Nitroguanidine, wetted, that is packed in flexible IBCs. A standard metal frame (either with or without mesh wire) is put around the IBC on the pallet and is used as the secondary protection.

