



Dangerous goods safety information sheet

Transport of mineral concentrates of UN 3077 – Environmentally hazardous substance, solid

Introduction

Following adoption of United Nation requirements for the transport of dangerous goods into the *Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th edition (ADG7)*, the scope of Class 9 “Miscellaneous dangerous substances” has been expanded to include *UN 3077 – Environmentally hazardous substances, solid*.

The determination of the dangerous goods status of mineral concentrates requires eco-toxicological assessment to test whether a particular metal in the mineral concentrate is sufficiently soluble in fresh or marine water to exhibit toxicity to aquatic organisms. Substances classified as UN 3077 are those that do not fall into any other dangerous goods classification and have no significant hazardous properties other than aquatic toxicity. Chapter 2.9 of ADG7 provides detail on the classification procedure.

Several mining companies have classified zinc, copper and lead sulphide concentrates into UN 3077, and it is possible that some, or most, nickel sulphide concentrates will also test positive as a UN 3077 material.

Following approaches by individual mining companies, transport companies, the Chamber of Minerals and Energy of Western Australia and the Minerals Council of Australia about the difficulties imposed by this new classification, Resources Safety determined that the additional costs and complexities required by ADG7 for UN 3077 mineral concentrates could not be justified on health, safety or environmental grounds and, in some circumstances, actually posed additional safety risks.

Consequently, and consistent with overseas dangerous goods transport regulations, Resources Safety granted a determination and two exemptions from the Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007 (Road and Rail Transport Regulations) for the transport of these dangerous goods in bulk containers within Western Australia.

This information sheet overviews how the determination and exemptions apply in Western Australia.

Application of determination and exemptions in relation to bulk containers

For the transport of UN 3077 mineral concentrates, the Chief Dangerous Goods Officer has issued:

- a determination allowing sheeted bulk containers (BK1) such as kibbles or side-tippers to transport UN 3077 materials, and not just closed bulk containers with rigid lids (BK2) [Determination No. 2, 2010];
- an exemption from the requirement for dangerous goods vehicle and driver licences [Exemption No. 23]; and
- an exemption from the need to use Emergency Information Panels (EIPs) but each trailer and the prime mover still needs to be placarded with class 9 diamonds on all sides [Exemption No. 24].

Under Exemption No. 24, the class diamond should be marked “UN 3077” in the lower half of the diamond to avoid confusion about the exact nature of the Class 9 dangerous goods. There is no need to apply the “environmentally hazardous substances mark” since, under Exemption No. 25, chapter 5.2 of ADG7 does not apply to bulk containers.

Copies of the determination and exemption notices from the Government Gazette can be viewed at www.dmp.wa.gov.au/6626.aspx#8296

Other requirements for bulk containers

Despite ADG7 clause 6.8.4.4, bulk containers do not require approval for packaging design in accordance with regulation 56 of the Road and Rail Transport Regulations because there are no performance tests in part 6 of ADG7.

Transporters need to make sure that their sheeted or closed bulk containers are well maintained and functional in compliance with the requirements of ADG7 section 4.3.1. In particular, the following ADG7 clauses should be noted.

- Clause 4.3.1.5 – “Bulk containers must be siftproof and must be so closed that none of the contents can escape under normal conditions of transport including the effect of vibration, or changes of temperature, humidity or pressure.”
- Clause 4.3.1.10 – “During transport, no dangerous residues may adhere to the outer surfaces of bulk containers.”

Transporters also need to have a contract with, or become, an “approved emergency responder”. The application form is available in the dangerous goods safety forms section of the Resources Safety website.

Placarding of intermodal containers in accordance with the International Maritime Dangerous Goods Code (IMDG Code)

The discussion above on placarding applies to the export of *bulk minerals*, which are loaded straight into the hold of a ship. The following placarding rules apply to export where the freight containers or BK2 bulk containers are loaded as a *package* on to the ship, and are therefore subject to IMDG Code requirements. These rules also apply to the export of intermediate bulk containers (IBCs) inside freight containers.

ADG7 contains special exemptions from the normal placarding rules for land transport from a mine site to the port for such export, so that placarding complies with the IMDG Code from the mine site.

Freight containers (with or without IBCs) and BK2 bulk containers, in which dangerous goods are being land-transported from the mine site for export and loading on to the ship as a package, need *not* be placarded with emergency information panels (EIPs), but must be marked and placarded in accordance with the IMDG Code (section 5.3.8 of ADG7).

Chapter 5.3 of volume 1 of the IMDG Code describes the placard, which is a Class 9 diamond label containing the UN number “UN 3077”, halfway between the number “9” and the vertical black and white stripes, in the bottom half of the class diamond. The marine pollutant mark (also called the environmentally hazardous substances mark) must appear next to the diamond. The placard must be:

- displayed on each side and at each end of the freight container; and
- at least 250 mm by 250 mm in size.

Even when freight containers contain packages, such as IBCs, there is still no need for the licensing of vehicles and drivers owing to the special Australian exemption “SP AU01” placed against UN 3077 in Chapter 3.2 of the Dangerous Goods List.

On some occasions, European law requires a substance to be placarded as an “environmentally hazardous substance” even though it is not sufficiently toxic to the environment to qualify under a normal UN 3077 classification. This is because the Globally Harmonised System (GHS) for classification and labelling, used in Europe, has further categories for less eco-toxic substances falling outside of transport criteria. In these cases, the marine pollutant mark is not required, but the substance should be treated as if it was UN 3077.