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## Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

### Sub-Committee of Experts on the Transport of Dangerous Goods

#### Sixty-fourth session

Geneva, 24 June-3 July 2024

Item 3 of the provisional agenda

#### Listing, classification and packing

### Transport provisions for small quantities of environmentally hazardous paints, printing inks, and related materials

Transmitted by the World Coatings Council (WCC)\*

#### I. Introduction and WCC efforts to date

1. Paint and printing ink are regularly transported in quantities between 5 and 30 litres to meet the requirements of the market. Industry requires packaging that can be safely and securely reclosed or resealed multiple times due to standard use and supply conditions for paints and printing inks (e.g., tinting of decorative paints at point-of-sale).
2. At the sixtieth and sixty-first sessions of the Sub-Committee, WCC presented four different proposals to resolve industry's packaging issues with small quantities of environmentally hazardous paint, printing ink, and related materials. When drafting the proposals, WCC was cognizant of the existing language in the *Model Regulations* and considered the consequences of any textual changes to ensure minimal impact. Ultimately, none of the proposals were supported. WCC's understanding is that the overall disagreement with the proposals was due, in part, to the fact that a few environmentally hazardous substances (i.e., paint and printing ink classified as environmentally hazardous) would be treated differently than other products that are also classified as environmentally hazardous. WCC has received mixed feedback on its previous working documents and is uncertain whether a specific approach for paints, printing inks, and related materials should be followed *or* whether a more general approach to cover all mixtures falling into the scope of UN 3082 would be more acceptable. For this reason, WCC is providing new proposals for either a new packaging provision *or* a new special provision for both approaches.
3. At the sixty-second session of the Sub-Committee, WCC held a lunchtime working group meeting to discuss industry's transport issues related to small packaging of Class 9 environmentally hazardous materials. A summary of the workgroup meeting was provided to the sixty-third session (see informal document INF.15).

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\* A/78/6 (Sect. 20), table 20.5

## II. Purpose of UN Model Recommendations and the Sub-Committee's work

4. According to the principles underlying the Regulation of the transport of dangerous goods of the *Model Regulations*:<sup>1</sup>

*“Transport of dangerous goods is regulated in order to prevent, as far as possible, accidents to persons or property and damage to the environment, the means of transport employed or to other goods. At the same time, regulations should be framed so as not to impede the movement of such goods, other than those too dangerous to be accepted for transport. With this exception, the aim of the regulations is to make transport feasible by eliminating risks or reducing them to a minimum. It is a matter therefore of safety no less than one of facilitating transport.”*

5. As discussed at the sixty-third session in response to ST/SG/AC.10/C.3/2023/47 by the Sporting Arms and Ammunition Manufacturers' Institute, these principles are an important reminder of the purpose and intent of the *Model Regulations* and the Sub-Committee's work. With those principles in mind, WCC is committed to finding a pragmatic solution to industry's packaging issues with small quantities of environmentally hazardous paint and printing ink that accounts for both transport safety and feasibility/efficiency. WCC intends to resolve this transport packaging issue before the end of the 2023/2024 biennium.

## III. Packing groups and classification of environmentally hazardous substances (Class 9)

6. For packing purposes, substances, other than those in Classes 1, 2 and 7, Divisions 5.2 and 6.2, and self-reactive substances in Division 4.1, are assigned to three packing groups in accordance with the degree of danger they present:

Packing group I: Substances presenting high danger;

Packing group II: Substances presenting medium danger; and

Packing group III: Substances presenting low danger.

7. Different packing groups may be assigned to the same UN number (e.g., UN 1263, UN 1993). The *Model Regulations* already differentiate within one UN number on the danger posed via the use of multiple packing groups that indicate the level of danger they present. This sets a precedent that it is possible to differentiate based on the transport hazard potential posed by the goods.

8. Environmentally hazardous substances in Class 9 that do not meet the classification criteria of any other class or another substance within Class 9 are assigned UN 3082 or UN 3077. They are assigned to Packing Group III, which indicates that these substances present a low danger.

9. The criteria for classification of mixtures containing environmentally hazardous substances is detailed in 2.9.3.4. The “relevant ingredients” of a mixture can include ingredients present at less than 0.1 % in the case of highly toxic ingredients as defined by 2.9.3.4.6.4. This has led to the classification of mixtures containing greater than 0.025 % of some preservatives as environmentally hazardous substances in Class 9. These preservatives are added at very small levels to protect products from microbial deterioration. See Annex A in informal document INF.7 for additional information on the classification of mixtures as environmentally hazardous substances.

10. Special provision 375 currently exempts packages containing less or equal than 5 L / 5 kg of UN 3082 and UN 3077 from all requirements of the *Model Regulations* other than certain general packing provisions of 4.1.1.1, 4.1.1.2, and 4.1.1.4 to 4.1.1.8. Alternatively, packages containing similar quantities of paints, printing inks, adhesives, and resin solutions

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<sup>1</sup> UN Model Recommendations on the Transport of Dangerous Goods, twenty-third revised edition (2023). Volume 1, Part 0, page 1, paragraph 4.

assigned to UN 3082 are not required to meet the performance tests in Chapter 6.1 when transported in certain configurations such as pallets or combination packaging (see special packing provision PP1 in packing instruction P001).

11. It is important to note that WCC is not requesting a change to the classification criteria for UN 3082. Instead, WCC is proposing a change for mixtures that would allow small quantities (more than 5 and less or equal than 30 L) of mixtures classified as UN 3082 to be transported without the need for UN-approved packaging.

12. In contrast to previous papers, this proposal is only for mixtures that contain highly toxic ingredients (as defined in 2.9.3.4.6.4) that are classified as UN 3082 using the summation method with M-factors higher than 1. Before addition of the highly toxic ingredients, which are used for preservation, the paint itself is not classified as dangerous goods for transport. Annex B in informal document INF.7 explains the differences in safety measures followed by our industry before and after the reclassification of certain paints from not regulated for transport to Class 9 environmentally hazardous mixtures.

13. Due to the addition of M-factors (multiplication factors) to three specific preservatives in the fifteenth Adaptation to Technical Progress (ATP) to the European Union (EU) Regulation on the classification, labelling and packaging of substances and mixtures (CLP Regulation), paint and ink companies reformulated their water-borne products to reduce the number of products that were impacted by these changes to the classification of the preservatives. However, with future reclassification of other preservatives expected in the EU, industry anticipates that more products will become classified as UN 3082 because of the addition of M-factors.

#### **IV. Packaging of paint, printing ink, and related materials**

14. The paint and printing ink industry uses a mix of metal and plastic packaging. The choice of packaging depends on the ingredients of the product, the customers (i.e., consumer, professional, industrial), and the use of the product. In addition, packaging is typically sourced locally. As a result, the availability of appropriate packaging must be considered in order to limit the environmental impact from the packaging.

15. Water-borne paint is currently shipped in plastic packaging, while solvent-borne paints are normally shipped in metal packaging. Plastic is a more suitable packaging for water-borne products because metal packaging needs an extra liner to protect it from corrosion.

16. UN-approved packagings, including plastic buckets, are not readily available for the paint and printing ink industry due to certain requirements for the packaging. These packaging requirements include the need for a large opening to allow for the product to be stirred and applied in use, as well as the requirement to open and reseal the packaging for tinting. Plastic buckets that are UN-approved are currently either only approved for solids or, if certified for liquids, are only certified before the tamper evident tag is removed. In addition, the products supplied may have a relative density of more than 1.2 and the packaging may not have been approved at these relative densities. The requirement to tint the mixtures provides an additional challenge for the packaging, which is specific to the paint industry and limits the availability of suitable packaging.

17. Over the past several months, industry has approached packaging suppliers and independent test houses to determine which tests suitable plastic packaging would pass. The suppliers confirmed that the plastic packaging used for water-borne paints and printing inks will not pass all the tests required to become UN-approved packaging for liquids. Plastic of polypropylene will not pass the drop test at the required temperature of  $-18^{\circ}\text{C}$  because polypropylene becomes brittle at freezing temperatures. Plastic buckets with wider opening will not pass the leakproofness test or hydraulic pressure test because the lid will start to leak due to the wider opening and construction of the bucket. Plastic buckets will pass the stacking test.

18. As mentioned, the requirement to open the packaging following manufacture for tinting purposes and subsequently reseal the packaging for onward transport is unique to paint,

printing ink, and paint-related materials. The tinting process may occur in a warehouse prior to distribution to the point of sale. As such, the packaging needs to be approved for shipment following the tinting process. Application of 1.1.1.2(b) is not applicable, as the goods are not solely carried by individuals following the tinting process.

## **V. Transport safety, accidents, clean-up, and industry best practices**

19. It is acknowledged that transport accidents happen when products are shipped. As suggested by the Sub-Committee, WCC investigated incidents of these specific water-borne products. However, since they were not previously classified as dangerous goods, there is not an official number of incidents and industry does not have any usable statistics for these specific water-borne products.

20. With that said, the paint and printing ink industry has improved its packaging to ensure that it is not damaged or opened during transit and that it is of good quality and meets the general requirements for packaging in 4.1.1.1 of the *Model Regulations*. Annex B in informal document INF.7 shows the safety measures that are already in place in our industry so that our products can be shipped without any damage during normal transport conditions to the customer. Any loss of products or damage during transit that is reported by the customer is investigated to improve packaging, loading, and securing measures. These incidents account for an extremely low number of all products that are shipped. Most incidents happen on-site during loading and unloading. Any spillage is cleaned up without release to the drains or soft ground, causing no damage to the environment.

21. The presence of preservatives within a water-borne mixture would not impact the methods used to clean-up any spillage to land. If a spill occurred, water-borne paints and inks would color the impacted area and require clean up due to the aesthetic damage. Thus, the area of impact is easily seen and managed. Larger spills would be contained and collected for disposal. The area would be washed, potentially with the addition of a surfactant or hot water, and the washing materials would also be collected for disposal. During the process, any drains would be covered to prevent loss to the drainage system. The viscosity of the paints and inks, as well as the small concentration of the preservatives within the water-borne paints and inks, means that the risk of damage to the environment is low.

22. Due to the low levels of the highly toxic ingredient present, as well as the additional requirements brought about by the classification of the mixture as UN 3082, the paint and printing ink industry intends to help facilitate the safe and efficient transport of these products while reducing the risks to a minimum. Please see Annexes B and C in informal document INF.7 for current safety measures and best practices already followed by industry for transporting paints.

## **VI. How certain countries regulate packaging of environmentally hazardous substances (Class 9)**

23. Australia's special provision AU01 states that environmentally hazardous substances meeting the descriptions of UN 3082 or UN 3077 are not subject to the Australian Dangerous Goods (ADG) code when transported by road or rail in packagings that do not exceed 500 kg(L) or in IBCs.

24. Transport Canada also has a special provision (SP99) in place for shipments of UN 3077 or UN 3082 by ground. It contains an exemption from the regulations on the transport of dangerous goods, except Part 1 (General Provision) and Part 2 (Classifications), for shipments under 450 liters or 450 kg on a road vehicle or railway vehicle. This exemption applies as long as general packaging conditions are met that are mentioned in the special provision.

25. U.S. Department of Transport (DOT) only requires marine pollutants to be regulated as marine pollutants if they are shipped in bulk size packaging (greater than 119 gallons/882 pounds) or when shipped by vessel (see 49 CFR 171.4).

## VII. Summary and conclusion

26. The alternative to avoid UN-approved plastic packaging is for industry to reduce the packages to a maximum size of 5 litres and use special provision 375 to ship the product as not regulated. This is less sustainable because it will increase the number of packagings, shipments, and waste. Alternatively, paints and inks could be reformulated to avoid the classification altogether, but options of suitable preservatives are limited. It is also anticipated that current preservatives will be reclassified with higher M-factors. This is not seen as a long-term solution. Industry already strikes a balance with in-can preservation by keeping preservatives to a minimum to ensure the paint does not spoil. Without a preservative, the paint will be less sustainable, as the shelf-life will be reduced.

27. Based on the information presented, WCC offers four separate proposals for consideration by the Sub-Committee. Proposal 1 would add a new packing provision that is specific for environmentally hazardous paint, printing ink, and related materials. Proposal 2 would add a new packing provision for all mixtures assigned to UN 3082. Proposal 3 would add a new special provision that is specific for environmentally hazardous paint, printing ink, and related materials. Proposal 4 would add a new special provision for all mixtures assigned to UN 3082. As mentioned, WCC is providing the option to apply the chosen derogation to either paints, printing inks, and related materials *or* to apply the derogation to all mixtures containing small amounts of highly toxic ingredients assigned to UN 3082.

28. WCC's proposals set an upper concentration limit of 1 % for highly toxic ingredients so that the amount of highly toxic ingredients in the mixture is limited and the packaging test is relaxed. The most severe classification that is currently contributing to the classification of paints is the Acute Category 1 with an M-factor of 1000. This mixture would be classified as UN 3082 at concentrations of more or equal to 0.025 %. Lower M-factors would decrease the concentration limit by a factor of 10. The proposed upper concentration limit of 1 % means that the sum of preservatives in water-borne paints and inks classified as UN 3082 would be limited to those that are present at levels of less than 1 %. Another reason for choosing the 1 % level is related to the former limit of 1% for severe marine pollutants from the IMDG Code's Dangerous Goods List (PP). Mixtures were classified as severe marine pollutants if they contained of more or equal to 1 % of a severe marine pollutant.

29. WCC also approached other sectors to discuss this packaging issue. WCC firmly believes that the issue with the availability of the packaging is specific to the paint industry due to its unique requirements (i.e., tinting; the requirement to stir the mixture before application; and access to the mixture for application (e.g. by brush)). However, WCC recognizes that relaxation of the regulation should be based on risk and not end-use. As such, WCC will defer to the Sub-Committee on a decision to regulate for all mixtures *or* for specific mixtures.

30. WCC is also open to alternative proposals, as well as further discussion during an informal lunchtime working group meeting to resolve this matter in a pragmatic way. WCC is committed to resolving this transport packaging issue before the end of the current biennium. WCC look forward to discussion on the best way to proceed.

## VIII. Proposals

### Proposal 1

31. In 4.1.4.1 add a new special packing provisions to packing instruction P001 for paint and printing ink as follows:

“PPXX For printing inks, printing ink related materials, paints, paint related materials and resin solution mixtures assigned to UN 3082 and containing up to a total of 1 % of highly toxic ingredients (as described in 2.9.3.4.6.4) packed in quantities of more than 5 litres and not more than 30 litres per packaging, the packagings are not required to meet the performance tests in Chapter 6.1 when transported:

- (a) in palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet; or
- (b) as inner packagings of combination packagings with a maximum net mass of 40 kg.”

32. Correct the existing special packing provision PP1 to reflect the use of special provision 375 as follows (deleted text is stricken through):

“PP1 For UN Nos. 1133, 1210,1263 and 1866 ~~and for adhesives, printing ink related materials, paints, paint related materials and resin solutions which are assigned to UN3082,~~ metal or plastic packaging for substances of packing groups II and III in quantities of 5 liters or less per packaging are not required to meet the performance tests in Chapter 6.1 when transported:

- (a) In palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapped or other suitable means to a pallet. For sea transport, the palletized loads, pallet boxes or unit load devices shall be firmly packed and secured in closed cargo transport units; or
- (b) As an inner packaging of a combination packaging with a maximum net mass of 40 kg.”

### Proposal 2

33. In 4.1.4.1 add a new special packing provisions to packing instruction P001 for mixtures:

“PPYY For mixtures assigned to UN 3082 and containing up to a total of 1 % of highly toxic ingredients (as described in 2.9.3.4.6.4 of the UN Model Regulations) packed in quantities of more than 5 litres and not more than 30 litres per packaging, the packagings are not required to meet the performance tests in Chapter 6.1 when transported:

- (a) in palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet; or
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- (a) In palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapped or other suitable means to a pallet. For sea transport, the palletized loads, pallet boxes or unit load devices shall be firmly packed and secured in closed cargo transport units; or
- (b) As an inner packaging of a combination packaging with a maximum net mass of 40 kg.”

### Proposal 3

35. In 3.3 add a new special provision XXX for paint and printing ink as follows:

“XXX For printing inks, printing ink related materials, paints, paint related materials and resin solution mixtures assigned to UN 3082 and containing up to a total of 1 % of

highly toxic ingredients (as described in 2.9.3.4.6.4) when transported in single or combination packagings containing a net quantity per single or inner packaging of 30 litres or less for liquids are not subject to the performance tests in Chapter 6.1 provided the packagings meet the general provisions of 4.1.1, except for 4.1.1.3, and 4.1.3.”

**Proposal 4**

36. In 3.3 add a new special provision YYY for mixtures as follows:

“YYY For mixtures assigned to UN 3082 and containing up to a total of 1 % of highly toxic ingredients (as described in 2.9.3.4.6.4) when transported in single or combination packagings containing a net quantity per single or inner packaging of 30 litres or less for liquids are not subject to the performance tests in Chapter 6.1 provided the packagings meet the general provisions of 4.1.1, except for 4.1.1.3, and 4.1.3.”

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