

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

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Item 6 (b) of the provisional agenda

**Miscellaneous proposals for amendments to the Model Regulations on the
Transport of Dangerous Goods: Packagings, including the use of recycled plastics material**

Micro holes (perforations) on water resistant bags

Transmitted by the observer from Turkey

Introduction

1. In the fifty-seventh session of the Sub-Committee, Turkey submitted informal document INF.32 (57th session) about multiwall water resistant paper bags (5M2) concerning water resistance property. We would like to thank you for interpretations and also for the valuable contributions by Belgium, Canada, Germany and Spain. The general opinion was that there is a gap in the definition of water resistance and some experts believed that the presence of water resistance layer is sufficient, no matter with/without perforations. We would like to extend the water resistance/moisture resistance issue to include other bag types.
2. In the Model Regulations, requirements for water resistant paper bags (5M2), textile bags (5L3) and woven plastic bags (5H3) are given as follows:

*“6.1.4.18.2 Bags 5M2: **to prevent the entry of moisture**, a bag of four plies or more shall be made waterproof by the use of either a water resistant ply as one of the two outermost plies or a water resistant barrier made of a suitable protective material between the two outermost plies; a bag of three plies shall be made waterproof by the use of a water resistant ply as the outermost ply. Where there is a danger of the substance contained reacting with moisture or where it is packed damp, a waterproof ply or barrier, such as double-tarred kraft paper, plastics-coated kraft paper, plastics film bonded to the inner surface of the bag, or one or more inner plastics liners, shall also be placed next to the substance. Joins and closures shall be waterproof.”*

*“6.1.4.15.3 Bags, water resistant, 5L3: **to prevent the entry of moisture** the bag shall be made waterproof, for example by the use of:*

- (a) separate inner liners of water resistant paper (e.g. waxed kraft paper, tarred paper or plastics-coated kraft paper); or*
- (b) plastics film bonded to the inner surface of the bag; or*
- (c) one or more inner liners made of plastics material.”*

*“6.1.4.16.4 Bags, water resistant, 5H3: **to prevent the entry of moisture**, the bag shall be made waterproof, for example by means of:*

- (a) separate inner liners of water resistant paper (e.g. waxed kraft paper, double-tarred kraft paper or plastics-coated kraft paper); or*
- (b) plastics film bonded to the inner or outer surface of the bag; or*
- (c) one or more inner plastics liners.”*

Interpretation

3. For air release, some manufacturers make micro holes on one or more layers of bags. These micro holes are particularly on plastic film or plastic-coated layer, but all layers may have micro holes, as well. Perforations are also listed in EN ISO 16106:2020 as specification for bag packagings.
4. Air release capacity is a specification for some packagings and the size of micro holes are selected according to required release value. An example of air flow test for a 5H woven plastic bag is shown below.



5. We would be happy to receive opinions about the evaluation of 'water resistance' in case of perforations on the bags.
6. Is there any way to check the 'water/moisture resistance'?
 - (a) There is no defined test in Model Regulations for water/moisture resistance. Is there any test to check the water/moisture resistance of the walls and junctions/seams of packagings applied in other countries?
 - (b) If there is not any test applied, is it checked whether there is perforation or not on the packaging?
 - (c) If there is perforation on the packaging, is there any check regarding the size and orientation of holes?
 - i. Orientation; for example, shifted/diverted micro holes, hole on bag's wall and hole on the plastic film/plastic-coated layer do not match, etc.
 - ii. Is there any extent to which these perforations are accepted as that they do not compromise water resistance/moisture mentioned in Model Regulations (maximum size or maximum air flow value)?