BUREAU OF INDIAN STANDARDS
BANGALORE BRANCH LABORATORY
CHEMICAL

29 June 2016

Subject: Comments on IS 15410:2003 read with IS 2798:1998 & IS 9845:1998

BNBOL has recently started testing of samples of containers for packaging of Packaged Natural Mineral Water (PNMW) and Packaged Drinking Water (PDW) as per IS 15410:2003. Referred Indian Standards for test methods for different tests are IS 2798:1998 and IS 9845:1998.

In testing the samples of containers as per IS 14543:2003, some observations have been made which are detailed below:

S. No.	Ref. cl. Of IS 15410:2003	Comments
1	**4.4:** The clause pertains to tolerance on capacity of containers and the test method specified is as per cl.5 of IS 2798.	(i) It is understood that in case of containers for packaging of PDW/PNMW brimful capacity (or permissible –ve tolerance on declared nominal capacity) may be measured/reported in ml. (ii) As per para 2 of cl.5.3 of IS 2798, "The water used shall be at ambient temperature or in case of dispute, at 27 ±2°C." (iii) As per cl.5.3.1, "The mass of the water in grams or volume of water measured is numerically equal to the brimful capacity of the container in millilitres". (iv) It is inferred from cl.5.3.2, that volume obtained as per cl.5.3.1 is to be multiplied by the correction factor Cf corresponding to the water temperature given in Table 1 **for expressing the brimful capacity of a container at a uniform temperature of 4°C.** (v) Practically, capacity of container is measured as mass in g at ambient temperature or at 27±2°C. It is proposed that **suitable table of correction factor for conversion of mass (in g) to volume at ambient temperature or at 27±2°C may be incorporated** so as to express the tolerance on nominal capacity in terms of volume (ml).
2	**4.6.3:** The clause requires testing of the container for 'Vibration leakage' as per cl.6.2 of IS 2798.	(i) As per cl.6.2.2 of IS 2798, the filled & closed container is to be placed in the **predetermined altitude** on the vibration table and the table is to be operated between 3, 4 and 6Hz for the **predetermined period** to give a peak to give a peak acceleration in the range of 0.5 to 1.1 g. (ii) The meaning of **predetermined altitude** and **predetermined period** is not clear in with reference to the test method. (iii) a) Relation between frequency (3, 4 and 6Hz) and acceleration (0.5 to 1.1 g), b) how to attain the same, c) whether these conditions are specific to the size of container.
3	**4.6.4:** The clause pertains to the testing of container for impact of drop as per cl.8 of IS 2798.	(i) As per cl.8.4 & 8.5, sample size mentioned is 6 containers – three each for Set 1 & Set 2 (filled and closed **with its usual closure specified in the relevant product standard**). (ii) Procedure for Drop Impact test is given in paras 3 & 4 of cl.8.5 (iii) As per para 5 of cl.8.5 which pertains to observations "The containers shall not rupture nor shall there be any leakage from the walls of the container. Slight de-shaping of the body shall not render the containers unacceptable in the test. " (iv) In case of 20 litre PET jars, in some cases, it has been observed that after dropping the container freely (mostly for Set 2), the closure gets detached from container's mouth resulting into total spillage of water. In such a situation, leakage from the walls of container cannot be ascertained (v) It is requested that guidance may be provided on how to interpret/report the observation in relation to the conformity to the requirement of test.
4	**4.6.6:** Water Potability Test	(i) As per cl.4.6.6, "**PNMW and PDW when stored in containers for 30 days**, shall not acquire any unpleasant odour or bitter taste when tested according to method prescribed in Annex B".

		(ii) As per B-2, tightly closed container filled to its nominal capacity with heated to 38±2°C is kept at this temperature for 30 days. After the specified storage period observations are to be made as per B-3. (iii) In case effect of container material on potability of already filled PDW/PNMW is to be observed, it is proposed that test for odour (IS 3025, Part 5) and taste (IS 3025 Part 8) on already filled PDW/PNMW may be incorporated in Annex B before start of Potability Test to rule out any inadvertent reporting after completion of period for Potability test. (iv) It is informed that samples of containers are received in the testing laboratory after a period of about 2-8 days from DOM (depending upon the location of BO/IO, mode of dispatch of sample, delay in delivery due to weekend etc.). If (iii) above is acceptable, for container samples already filled with PDW/PNMW having shelf life of only 30 days (from DOM), the period for Potability Test may be specified (whether 30 days from receipt of sample in the testing section or up to declared expiry date). (v) Since the product to be tested is container for packaging of PDW/PNMW, it is proposed that for observing any adverse effect of container material on potability of water, some reference water (of acceptable odour and taste) may be specified with which containers may be filled and kept at specified temperature for 30 days in all cases (irrespective of declared shelf life).
5	**General**	In case of non-compliance of samples for brimful capacity (cl.4.4 of IS 15410), it is not possible to fill the container to its declared nominal capacity which is more than observed brimful capacity. Guidance may be provided on how to proceed with following tests in which the container is to be filled with declared nominal capacity: (i) Closure Leakage, 4.6.3 of IS 15410 read with cl.6.1 of IS 2798. (ii) Vibration Leakage, cl.4.6.3 of IS 15410 read with cl.6.2 of IS 2798. (iii) Drop Impact test, cl.4.6.4 of IS 15410 read with cl.8.5 of IS 2798. (iv) Water Potability test, cl.4.6.6 read with cl.B-2 of IS 15410

Competent Authority may kindly consider the above facts for making necessary changes/amendment in the specifications/product manual.

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