1.0 – Inspection site

Merck KGaA
Packaging Technology Department
Strategic Packaging Material Management

64293 Darmstadt, Germany

1.1 – Inspection order / application

- Suitability inspection of packaging for diverse products
- Safety evaluation of primary and transport packaging

1.2 – Legal bases


1.3 Inspection Report No.

EM 2002023 – Narrow-neck bottles, polyethylene, 500 mL – 2500 mL

2.0 - Products used

The products used and released by Strategic Packaging Material Management are listed in Appendix 1 of this documentation.

3.0 - Packaging-specific information

3.1 - Designation of packaging

The product is packed, stored and transported as composite packaging according to GGVSE, with an inner packaging consisting of plastic bottles and an outer packaging consisting of a corrugated cardboard box.
3.2 - Packaging description – inner packaging

Designation: Narrow-neck bottles, polyethylene
Packaging material No.: 7515130503, 7515130506, 7515131142 and 7515132525
Material: HDPE; acc. to specification
Closure: Screw cap S 40 polypropylene, alternatively with insert
Packaging material No.: 7535310508, alternatively 7535310509 and 7535310513 in conjunction with 7525290510

Special characteristics: none

3.3 - Packaging description – outer packaging

Designation: Folding box, corrugated cardboard
Material: Single corrugated cardboard, type 1.40
Design: Slotted type cardboard acc. to FEFCO 0201, alternatively slip-lid type cardboard
Dangerous goods registration: BAM 5341 / 4G – X-coding (slotted type cardboard)
registration: BAM 4626 / 4G – X-coding (slip-lid type cardboard)

Special characteristics: The described packaging holds 6 or 12 bottles, respectively. If the number of bottles to be sent in one consignment differs, a folding box of corrugated cardboard of the slip-lid type (BAM 4626 / 4G) can be used.

3.4 - Packaging description – cushioning materials

No additional cushioning materials are needed as these are plastic bottles. For the variant with 12 bottles in the corrugated cardboard box, cushioning paper is used as a spacer or fixation.

4.0 - Tests performed

The bottles were subjected to the following tests as required by GGVSE. These tests are performed for proof of adequate efficiency and suitability of the packaging.

- Drop test of inner packaging acc. to 6.1.5.3 of the ADR
- Leak test of inner packaging acc. to 6.1.5.4 of the ADR
- Test of conformity with guaranteed values after a storage period of 12 months at 40°C
### Test results

**Drop test acc. to 6.1.5.3 of the ADR**

- **Number of test samples:** 1 unit (all drop positions with 1 sample) per corrugated cardboard variant (3)
- **Conditioning:** -18°C
- **Drop height:** 1.80 m
- **Drop positions:** bottom, screw cap, diagonally to bottom, diagonally to screw cap and 2 x seam of circumference

**Test result:** test passed; no impairment of packaging.

- **Number of test samples:** 1 unit (all drop positions with 1 sample) per bottle variant without outer packaging (3)
- **Conditioning:** -18°C
- **Drop height:** 1.80 m
- **Drop positions:** bottom, screw cap, diagonally to bottom, diagonally to screw cap and 2 x seam of circumference

**Test result:** test passed; no impairment of packaging.

**Leak test acc. to 6.1.5.4 of the ADR**

- **Number of test samples:** 3 units per screw cap variant
- **Test method:** vacuum method
- **Test medium:** air
- **Test pressure:** 600 mbar
- **Test duration:** 30 minutes

**Test result:** test passed; no impairment of packaging.
The test samples were stored in PM LOG/P at 40°C and subsequently the specified parameters – GR grade – were tested for conformity. 1-liter bottles were filled as test samples. 3 test samples were tested, respectively.

The following products were tested; none of the products showed any deviation from the guaranteed value of the specification:

109623 - Ethyl acetate  
100334 - Hydrofluoric acid 48%  
271149 - o-Phosphoric acid 85%  
271171 - Hydrochloric acid 37%  
271169 - Nitric acid 65%  
271161 - Acetic acid 100%  
106009 - Methanol  
100981 - Benzyl alcohol  
100983 - Ethanol  
109634 - Isopropanol  
100366 - Lactic acid  
109033 - Schiff's reagent  
100441 - Nitric acid 65% Suprapur  
109253 - Papanicolaou's solution  
109272 - Papanicolaou's solution  
106888 - Papanicolaou’s solution  
105387 - Leishman’s eosin methylene blue solution  
101383 - Wright's eosin methylene blue solution  
109204 - Giemsa’s azur eosin methylene blue solution  
101424 - May Grünwald’s eosin methylene blue solution  
107478 - 1,2-Propanediol  
100014 - Acetone  
100013 - Acetone  
108597 - Hydrogen peroxide 30%  
100709 - Sulfuric acid 96%  
107174 - Paraffin highly liquid
4.2 - Evaluation of packaging

The material is suitable for dispatch and storage of the above-named products.

5.0 – Statement of confirmation

This inspection report comprises 5 pages.

The tests conform with state-of-the-art technology and were performed on the legal bases stated in 1.2.

Darmstadt, June 16, 2003

______________________________
Ralf Kranz
Strategic Packaging Material Management