

**LVHT**

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Test Report

in accordance with the Recommendation of the BGA (Federal Health Office) for
Plastic Materials for Use in Baths and Swimming Facilities (German Abbreviation: KSW)

for

RENOLIT IBÉRICA, S.A.
Ctra. Del Montnegre, s/n
08470 Sant Celoni / Spain
Job No. KSW 6111-1 / 08.2009

Material tested: Alkorplan 2000 (blue)

Date of receipt: April 2009

Size of sample: 200 mm x 200 mm – homogeneous – cut to size

Area of use: Swimming and bathing pool water

Material type: PVC-based (swimming pool sheeting)

Type of test: Migration behaviour of material exposed to chlorine

Assessment of results:

For the entire duration of the tests (nine days), the results obtained with the material tested were below the statutory limits (organic C, chlorine consumption) or recommended values (additional material properties: chloramines, trihalomethanes, oxidation capacity). With respect to its hygiene and technical properties, the material tested must therefore be assessed as suitable for use in swimming and bathing pools ($< 10 \text{ mg/l free Cl}_2$, $30 \pm 0.5 \text{ }^\circ\text{C}$).



Geschäftsführer: Dipl.-Ing Bernd Wiesend · Amtsgericht Essen · HRB Nr.: 9817 · USt.-Id Nr.: DE 1 19 67 02 11

Akkreditiert bei der Staatlichen Akkreditierungsstelle Hannover (AKS Hannover) Nr.: AKS-P-20706-EU

Mitglied in: Deutsche Gesellschaft für das Badewesen e.V. · DIN-Kommission 19643 · DVGW · European Waterpark Association · VDI-Kommission 2089

Bankverbindung: Commerzbank Essen · Kto 3 204 500 · BLZ 360 400 39 · Sparkasse Mülheim · Kto 300 009 913 · BLZ 362 500 00

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of our test certificate of 25 August 2009 (Alkorplan 2000 - blue)
RENOLIT IBÉRICA, S.A.
Ctra. Del Montnegre, s/n, 08470 Sant Celoni / Spain

Test conditions: for swimming and bathing water use

Migration test: yes

Chlorine consumption test: yes

Temperature (C°): 30 ± 0.5

Initial Cl₂ concentration (mg/l): 10.0 ± 0.5

Pre-treatment: exposure to chlorine-free water from the central drinking water system for 72 hours

Contact time: 9 days for one test

| Parameter | Test water | | | Change compared with water at start of test |
|--------------------------------------|--|------------|------------|--|
| | Days 1–3 | Days 4–6 | Days 7–9 | after day 9 |
| Colour | colourless | colourless | colourless | none |
| Turbidity | none | none | none | none |
| Odour | none | none | none | none |
| Foaming tendency | none | none | none | none |
| | Material surface values relevant to KSW $M = \text{mg/m}^2 \times \text{day}$ | | | Maximum limit $M = \text{mg/m}^2 \times \text{day}$ |
| Org. C | 9.05 | 7.55 | 7.13 | ≤ 10 |
| Chlorine consumption (free chlorine) | 6.08 | 5.85 | 5.14 | ≤ 8 |
| | Additional material values $M = \text{mg/m}^2 \times \text{day}$ | | | Recommended limit $M = \text{mg/m}^2 \times \text{day}$ |
| Chloramines | < 0.01 | < 0.01 | < 0.1 | ≤ 2 |
| THM concentration | < 1 | < 1 | < 1 | ≤ 15 |
| Oxidation capacity | 3.15 | 2.95 | 2.22 | ≤ 14 |

THM = trihalomethanes (calculated as trichloromethane)

L. V. H. T. GmbH
(Dr. D. Pacik)

45307 Essen, 26 August 2009 / lo