**Hygiene-Institut des Ruhrgebiets**
Institut für Umwelthygiene und Toxikologie
Director: Dr. Thomas-Benjamin Seiler
**Legal Entity: Verein des Hygiene-Instituts des Ruhrgebiets e.V.**

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Interplast S.A.
Plastic Piping Systems
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Reference-No.: **K-401474-25-Pl/Lk**
Contact person: Dr. Damian Pleschka

Gelsenkirchen, 05.05.2025

# TEST REPORT
## according to the requirements of DIN EN 12873-1:2014-09 and DIN EN 1420:2016-05

| | |
|---|---|
| **Order of:** | 08-November-2024 |
| **Field of application:** | Ancillaries (P1) for pipes with 80 mm ≤ ID < 300 mm<br>cold water and warm water (23 °C and 60 °C) |
| **Product:** | **Aqua Plus PPR Fittings** |
| **Test Specimen:** | fittings elbow 160/90 SDR11 segments (green) made of PPR,<br>surface: 2447.9 cm² (manufacturer's information) |
| **Production Place:** | Interplast S.A., Industrial Area of Komotini, 69100 Komotini – Greece |
| **Date of receipt:** | 26-November-2024 |
| **Sampler:** | samples sent |
| **Start of migration test:** | 04-February-2025 |
| **End of migration test:** | 13-February-2025 |

The Director of the Hygiene-Institute
on behalf of

Dr. rer. nat. Damian Pleschka
Head of the Department for
water hygienic material testing

This test report consists of 3 pages.

**Test results cold water (23 °C)**

**Product:** **Fittings Elbow 160/90 SDR 11**
**Specimen:** fittings elbow 160/90 SDR11 segments (green) made of PPR, surface: 651 cm² (manufacturer's information)
**Formulation:** submitted and checked (no.: 12573)

**Conversion factor:** 1 (Ancillaries for pipes with 80 mm ≤ ID < 300 mm)
**S/V-ratio migration test according to DIN EN 12873-1:2014-09:** 6.86 dm² / 1.37 dm³ ≙ 5.01 $dm^{-1}$
**S/V-ratio odour/flavour test according to DIN EN 1420:2016-05:** 3.68 dm² / 2.45 dm³ ≙ 1.50 $dm^{-1}$

| Parameter | Method | Test cycle / Result 1 4th day | 2 7th day | 3 10th day | Requirements according to KTW-BWGL[1)] |
|---|---|---|---|---|---|
| Colour [mg/l Pt] / (pH value) | DIN EN ISO 7887:2012-04 method C | < 2 / (6.5) | < 2 / (5.7) | < 2 / (5.7) | ≤ 10 mg/l Pt |
| Turbidity [FNU] | DIN EN ISO 7027-1:2016-11 | < 0.1 | < 0.1 | < 0.1 | ≤ 0.5 FNU |
| Tendency to foam formation | HY-14.5, 2008-11 | none | none | none | n.s.e. |
| Threshold odour number (23 °C) | DIN EN 1622:2006-10 | 1 | 1 | 1 | ≤ 2 |
| Total organic carbon (TOC) $c_{tap}$ mg/l | DIN EN 1484:2019-04 | 0.03 | 0.01 | 0.01 | ≤ 0.5 |
| Formulation specific parameters with restrictions | | Six formulation specific parameters with restrictions were analysed within the test water fractions. The Guidance Levels are passed.[2) 3)] | | | Guidance Level passed |

The test water fractions for the analysis of odour, turbidity, colour and foam formation were prepared according to DIN EN 1420:2016-05.

The test water fractions for the analysis of TOC, additional parameters and formulation specific parameters were prepared according to DIN EN 12873-1:2014-09 or DIN EN 12873-2:2005-04.

[1)] KTW-BWGL, Annex A (status 2022-03) [2)] results are partially not accredited

[3)] the formula specific parameters were partially analysed in accredited third laboratories (D-PL-11140-04-00)

n.s.e. = not significantly effected

**Test results warm water (60 °C)**

**Product:** **Fittings Elbow 160/90 SDR 11**
**Specimen:** fittings elbow 160/90 SDR11 segments (green) made of PPR, surface: 651 cm² (manufacturer's information)
**Formulation:** submitted and checked (no.: 12573)

**Conversion factor:** 1 (Ancillaries for pipes with 80 mm ≤ ID < 300 mm)
**S/V-ratio migration test according to DIN EN 12873-1:2014-09:** 6.86 dm² / 1.37 dm³ ≙ 5.01 $dm^{-1}$
**S/V-ratio odour/flavour test according to DIN EN 1420:2016-05:** 3.68 dm² / 2.45 dm³ ≙ 1.50 $dm^{-1}$

| Parameter | Method | Test cycle / Result 1 2nd day | 2 3rd day | 3 4th day | 7 10th day | Requirements according to KTW-BWGL[1)] |
|---|---|---|---|---|---|---|
| Colour [mg/l Pt] / (pH value) | DIN EN ISO 7887:2012-04 method C | < 2 / (6.4) | < 2 / (5.8) | < 2 / (5.8) | < 2 / (5.7) | ≤ 10 mg/l Pt |
| Turbidity [FNU] | DIN EN ISO 7027-1:2016-11 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | ≤ 0.5 FNU |
| Tendency to foam formation | HY-14.5, 2008-11 | none | none | none | none | n.s.e. |
| Threshold odour number (23 °C) | DIN EN 1622:2006-10 | 1 | 1 | 1 | 1 | ≤ 4 |
| Total organic carbon (TOC) $_{Ctap}$ mg/l | DIN EN 1484:2019-04 | 0.04 | 0.03 | 0.03 | < 0.02 | ≤ 0.5 |
| Formulation specific parameters with restrictions | | Six formulation specific parameters with restrictions were analysed within the test water fractions. The Guidance Levels are passed.[2) 3)] | | | | Guidance Level passed |

The test water fractions for the analysis of odour, turbidity, colour and foam formation were prepared according to DIN EN 1420:2016-05.

The test water fractions for the analysis of TOC, additional parameters and formulation specific parameters were prepared according to DIN EN 12873-1:2014-09 or DIN EN 12873-2:2005-04.

[1)] KTW-BWGL, Annex A (status 2022-03)

[2)] results are partially not accredited

[3)] the formula specific parameters were partially analysed in accredited third laboratories (D-PL-11140-04-00)

n.s.e. = not significantly effected