

20241011DBo
October 11, 2024

Toxicological review of Instantor leadfree compression fittings according to NSF/ANSI/CAN 372



**Trust
Quality
Progress**



20241011DB0
October 11, 2024

Toxicological review of Instantor leadfree compression fittings

© 2024 Kiwa Nederland B.V.
All rights reserved. No part of
this report may be
reproduced, stored in a
database or retrieval system,
or published, in any form or in
any way, electronically,
mechanically, by print,
photoprint, microfilm or any
other means without prior
written permission from the
publisher.

Evaluation of Instantor leadfree compression fittings for
the compliance to NSF/ANSI/CAN 372.

Colophon

Title	Toxicological review of Instantor leadfree compression fittings
Project Number	P000377295
Contractor	Sanbra Fyffe Ltd.
Quality Assurance	Dirkjan van den Berg
Author(s)	D. Bosch

This report is not publicly available, but distributed only to the client(s) who commissioned this project. Distribution of the report outside the project team is done only by and under responsibility of the client.

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
Postbus 70
2280 AB RIJSWIJK
The Netherlands

Tel. +31 88 998 44 00
Fax +31 88 998 44 20
info@kiwa.nl
www.kiwa.nl

Contents

1	Introduction	2
2	Products description	2
3	Product evaluation and test procedure	8
4	Evaluation of test results	9
5	Conclusions	9

1 Introduction

Kiwa Nederland B.V. conducted an evaluation of Instantor leadfree compression fittings to show compliance to the NSF/ANSI/CAN 372 standard. This was part of the project, assigned by Sanbra Fyffe Ltd. (signed quotation QUO-168350-J9C2M0_V3).

The evaluation was carried out by the Kiwa product group Hygienic Aspects, location Rijswijk (NL).

2 Products description

The product are Instantor leadfree compression fittings. In table 1 all models belonging to these group of fittings are given. Figure 1 to 6 gives a few examples of the fittings.

Table 1: *Models Instantor leadfree compression fittings*

Model	Part / Material	Water contact area [%]
310001LF	Fitting Straight Main Body / CW511L	83
	Fitting Olive/Ring / H65	17
	Fitting Nut / CW617N	0
310002LF	Fitting Straight Main Body / CW511L	79
	Fitting Olive/Ring / H65	21
	Fitting Nut / CW617N	0
310003LF	Fitting Straight Main Body / CW511L	79
	Fitting Olive/Ring / H65	621
	Fitting Nut / CW617N	0
310021LF	Fitting Straight Main Body / CW511L	75
	Fitting Olive/Ring / H65	15
	Fitting Nut / CW617N	0
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0
310032LF	Fitting Straight Main Body 1" x 3/4" / CW511L	79
	Fitting Olive/Ring / H65	11
	Fitting Nut / CW617N	0
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0
311001LF	Fitting Straight Main Body 1/2" x BSP / CW511L	84
	Fitting Olive/Ring / H65	16
	Fitting Nut / CW617N	0
311002LF	Fitting Straight Main Body 3/4" x BSP / CW511L	84
	Fitting Olive/Ring / H65	16
	Fitting Nut / CW617N	0
311003LF	Fitting Straight Main Body 1" x BSP / CW511L	86
	Fitting Olive/Ring / H65	14
	Fitting Nut / CW617N	0
311012LF	Fitting Straight Main Body 1/2" BSP x 3/4" / CW511L	81
	Fitting Olive/Ring / H65	19
	Fitting Nut / CW617N	0
311021LF	Fitting Straight Main Body 3/4" BSP x 1/2" / CW511L	90
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0

Model	Part / Material	Water contact area [%]
311032LF	Fitting Straight Main Body 1" BSP x 3/4" / CW511L	90
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0
312001LF	Fitting Straight Main Body 1/2" x 1/2"F.i. BSP / CW511L	77
	Fitting Olive/Ring / H65	33
	Fitting Nut / CW617N	0
312002LF	Fitting Straight Main Body 3/4" x 3/4"F.i. BSP / CW511L	83
	Fitting Olive/Ring / H65	17
	Fitting Nut / CW617N	0
312003LF	Fitting Straight Main Body 1" x 1"F.i. BSP / CW511L	80
	Fitting Olive/Ring / H65	20
	Fitting Nut / CW617N	0
312021LF	Fitting Straight Main Body 3/4" x 1/2"F.i. BSP / CW511L	75
	Fitting Olive/Ring / H65	25
	Fitting Nut / CW617N	0
312032LF	Fitting Straight Main Body 3/4" x 1"F.i. BSP / CW511L	82
	Fitting Olive/Ring / H65	18
	Fitting Nut / CW617N	0
315001LF	Fitting Elbow Main Body 1/2" / CW511L	81
	Fitting Olive/Ring / H65	19
	Fitting Nut / CW617N	0
315002LF	Fitting Elbow Main Body 3/4" / CW511L	83
	Fitting Olive/Ring / H65	17
	Fitting Nut / CW617N	0
315003LF	Fitting Elbow Main Body 1" / CW511L	92
	Fitting Olive/Ring / H65	8
	Fitting Nut / CW617N	0
316001LF	Fitting Elbow Main Body 1/2" M.i. BSP x 1/2" / CW511L	91
	Fitting Olive/Ring / H65	9
	Fitting Nut / CW617N	0
316002LF	Fitting Elbow Main Body 3/4" M.i. BSP x 3/4" / CW511L	91
	Fitting Olive/Ring / H65	9
	Fitting Nut / CW617N	0
316003LF	Fitting Elbow Main Body 1" M.i. BSP x 1" / CW511L	88
	Fitting Olive/Ring / H65	12
	Fitting Nut / CW617N	0
317001LF	Fitting Elbow Main Body 1/2" F.i. BSP x 1/2" / CW511L	87
	Fitting Olive/Ring / H65	13
	Fitting Nut / CW617N	0
317002LF	Fitting Elbow Main Body 3/4" F.i. BSP x 3/4" / CW511L	79
	Fitting Olive/Ring / H65	21
	Fitting Nut / CW617N	0
317003LF	Fitting Elbow Main Body 1" F.i. BSP x 1" / CW511L	83
	Fitting Olive/Ring / H65	17
	Fitting Nut / CW617N	0
318001LF	Fitting TEE Main Body 1/2" x 1/2" x 1/2" / CW511L	85
	Fitting Olive/Ring / H65	15
	Fitting Nut / CW617N	0

Model	Part / Material	Water contact area [%]
318002LF	Fitting TEE Main Body 3/4" x 3/4" x 3/4" / CW511L	90
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0
318003LF	Fitting TEE Main Body 1" x 1" x 1" / CW511L	84
	Fitting Olive/Ring / H65	16
	Fitting Nut / CW617N	0 / 0
318212LF	Fitting TEE Main Body 3/4" x 1/2" x 3/4" / CW511L	68
	Fitting Olive/Ring / H65	21
	Fitting Nut / CW617N	0
	Fitting/Olive/ring / H65	11
	Fitting Nut / CW617N	0
318221LF	Fitting TEE Main Body 3/4" x 3/4" x 1/2" / CW511L	64
	Fitting Olive/Ring / H65	29
	Fitting Nut / CW617N	0
	Fitting/Olive/ring / H65	17
	Fitting Nut / CW617N	0
318331LF	Fitting TEE Main Body 1" x 1/2" x 1" / CW511L	68
	Fitting Olive/Ring / H65	25
	Fitting Nut / CW617N	0
	Fitting/Olive/ring / H65	7
	Fitting Nut / CW617N	0
318332LF	Fitting TEE Main Body 1" x 1" x 3/4" / CW511L	71
	Fitting Olive/Ring / H65	21
	Fitting Nut / CW617N	0
	Fitting/Olive/ring / H65	8
	Fitting Nut / CW617N	0
319001LF	Fitting Wallplate Elbow Main Body 1/2" F.i. BSP x 1/2" / CW511L	90
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0
327001LF	Fitting Swivel Elbow Main Body 1/2" F.i. BSP x 1/2" / CW511L	89
	Fitting Olive/Ring / H65	7
	Fitting Nut / CW617N	0
	Red Fibre washer / Fibre	4
	Union Nut / CW602N	0
330001LF	Fitting Thread TEE Main Body 1/2" F.i. BSP x 1/2" / CW511L	84
	Fitting Olive/Ring / H65	16
	Fitting Nut / CW617N	0
330002LF	Fitting Thread TEE Main Body 3/4" F.i. BSP x 3/4" / CW511L	86
	Fitting Olive/Ring / H65	14
	Fitting Nut / CW617N	0
351001LF	Fitting STOP END Main Body 1/2" / CW511L	78
	Fitting Olive/Ring / H65	22
	Fitting Nut / CW617N	0
351002LF	Fitting STOP END Main Body 3/4" / CW511L	65
	Fitting Olive/Ring / H65	35
	Fitting Nut / CW617N	0
351003LF	Fitting STOP END Main Body 1" / CW511L	69
	Fitting Olive/Ring / H65	31
	Fitting Nut / CW617N	0

Model	Part / Material	Water contact area [%]
410001LF	Fitting Straight Main Body 15mm / CW511L	72
	Fitting Olive/Ring / H65	28
	Fitting Nut / CW617N	0
410002LF	Fitting Straight Main Body 22mm / CW511L	72
	Fitting Olive/Ring / H65	28
	Fitting Nut / CW617N	0
410003LF	Fitting Straight Main Body 28mm / CW511L	74
	Fitting Olive/Ring / H65	26
	Fitting Nut / CW617N	0
410021LF	Fitting Straight Main Body 22mm x 15mm / CW511L	69
	Fitting Olive/Ring / H65	14
	Fitting Nut / CW617N	0
	Fitting Olive/Ring / H65	18
	Fitting nut / CW617N	0
410032LF	Fitting Straight Main Body 28mm x 22mm / CW511L	80
	Fitting Olive/Ring / H65	9
	Fitting Nut / CW617N	0
	Fitting Olive/Ring / H65	11
	Fitting nut / CW617N	0
411001LF	Fitting Straight Main Body 1/2" M.i. BSP x 15mm / CW511L	85
	Fitting Olive/Ring / H65	15
	Fitting Nut / CW617N	0
411002LF	Fitting Straight Main Body 3/4" M.i. BSP x 22mm / CW511L	85
	Fitting Olive/Ring / H65	15
	Fitting Nut / CW617N	0
411003LF	Fitting Straight Main Body 1" M.i. BSP x 28mm / CW511L	86
	Fitting Olive/Ring / H65	14
	Fitting Nut / CW617N	0
411012LF	Fitting Straight Main Body 1/2" M.i. BSP x 22mm / CW511L	85
	Fitting Olive/Ring / H65	15
	Fitting Nut / CW617N	0
411021LF	Fitting Straight Main Body 3/4" M.i. BSP x 15mm / CW511L	86
	Fitting Olive/Ring / H65	14
	Fitting Nut / CW617N	0
411032LF	Fitting Straight Main Body 1" M.i. BSP x 22mm / CW511L	90
	Fitting Olive/Ring / H65	10
	Fitting Nut / CW617N	0
412001LF	Fitting Straight Main Body 1/2" F.i. BSP x 15mm / CW511L	79
	Fitting Olive/Ring / H65	21
	Fitting Nut / CW617N	0
412002LF	Fitting Straight Main Body 3/4" F.i. BSP x 22mm / CW511L	79
	Fitting Olive/Ring / H65	21
	Fitting Nut / CW617N	0
412003LF	Fitting Straight Main Body 1" F.i. BSP x 28mm / CW511L	81
	Fitting Olive/Ring / H65	19
	Fitting Nut / CW617N	0
412021LF	Fitting Straight Main Body 3/4" F.i. BSP x 15mm / CW511L	83
	Fitting Olive/Ring / H65	17
	Fitting Nut / CW617N	0

Model	Part / Material	Water contact area [%]
412032LF	Fitting Straight Main Body 1" F.i. BSP x 22mm / CW511L	82
	Fitting Olive/Ring / H65	18
	Fitting Nut / CW617N	0
415001LF	Fitting Elbow Main Body 15mm / CW511L	81
	Fitting Olive/Ring / H65	19
	Fitting Nut / CW617N	0
415002LF	Fitting Elbow Main Body 22mm / CW511L	83
	Fitting Olive/Ring / H65	17
	Fitting Nut / CW617N	0
415003LF	Fitting Elbow Main Body 28mm / CW511L	77
	Fitting Olive/Ring / H65	23
	Fitting Nut / CW617N	0
416001LF	Fitting Threaded Elbow Main Body 1/2" M.i. BSP X 15mm / CW511L	91
	Fitting Olive/Ring / H65	9
	Fitting Nut / CW617N	0
416002LF	Fitting Threaded Elbow Main Body 3/4" M.i. BSP X 22mm / CW511L	92
	Fitting Olive/Ring / H65	8
	Fitting Nut / CW617N	0
416003LF	Fitting Threaded Elbow Main Body 3/4" M.i. BSP X 22mm / CW511L	94
	Fitting Olive/Ring / H65	6
	Fitting Nut / CW617N	0
417001LF	Fitting Threaded Elbow Main Body 1/2" F.i. BSP X 15mm / CW511L	88
	Fitting Olive/Ring / H65	12
	Fitting Nut / CW617N	0
417002LF	Fitting Threaded Elbow Main Body 3/4" F.i. BSP X 22mm / CW511L	89
	Fitting Olive/Ring / H65	11
	Fitting Nut / CW617N	0
417003LF	Fitting Threaded Elbow Main Body 1" F.i. BSP X 28mm / CW511L	91
	Fitting Olive/Ring / H65	9
	Fitting Nut / CW617N	0
418001LF	Fitting Tee Main Body 15mm / CW511L	80
	Fitting Olive/Ring / H65	20
	Fitting Nut / CW617N	0
418002LF	Fitting Tee Main Body 22mm / CW511L	82
	Fitting Olive/Ring / H65	18
	Fitting Nut / CW617N	0
418003LF	Fitting Tee Main Body 28mm / CW511L	84
	Fitting Olive/Ring / H65	16
	Fitting Nut / CW617N	0
418212LF	Fitting Red. Tee Main Body 22mm x 15mm x 22mm / CW511L	69
	Fitting Olive/Ring 22mm / H65	23
	Fitting Nut 22mm / CW617N	0
	Fitting Olive/ring 15mm / H65	8
	Fitting Nut 15mm / CW617N	0

Model	Part / Material	Water contact area [%]
418221LF	Fitting Red. Tee Main Body 22mm x 22mm x 15mm / CW511L	69
	Fitting Olive/Ring 22mm / H65	23
	Fitting Nut 22mm / CW617N	0
	Fitting Olive/ring 15mm / H65	8
	Fitting Nut 15mm / CW617N	0
418331LF	Fitting Red. Tee Main Body 28mm x 28mm x 15mm / CW511L	69
	Fitting Olive/Ring 28mm / H65	24
	Fitting Nut 28mm / CW617N	0
	Fitting Olive/ring 15mm / H65	6
	Fitting Nut 15mm / CW617N	0
418332LF	Fitting Red. Tee Main Body 28mm x 28mm x 22mm / CW511L	72
	Fitting Olive/Ring 28mm / H65	20
	Fitting Nut 28mm / CW617N	0
	Fitting Olive/ring 22mm / H65	8
	Fitting Nut 22mm / CW617N	0
419001LF	Fitting wallplate Elbow Main Body 1/2" F.i. BSP x 15mm / CW511L	91
	Fitting Olive/Ring 15mm / H65	9
	Fitting Nut 28mm / CW617N	0
427001LF	Fitting Swivel Elbow Main Body 1/2" F.i. BSP x 15mm / CW511L	83.9
	Fitting Olive/Ring 15mm / H65	6.6
	Fitting Nut 15mm / CW617N	0
	Union Nut 15mm BSP F.i. / CW602N	0
	Red Fibre Washer / Fibre	9.5
430001LF	Fitting Thread TEE Main Body 1/2" F.i. BSP x 15mm / CW511L	92
	Fitting Olive/Ring 15mm / H65	8
	Fitting Nut 28mm / CW617N	0
430002LF	Fitting Thread TEE Main Body 3/4" F.i. BSP x 22mm / CW511L	86
	Fitting Olive/Ring 22mm / H65	14
	Fitting Nut 28mm / CW617N	0
451001LF	Fitting Stop END Main Body 15mm / CW511L	79
	Fitting Olive/Ring 15mm / H65	21
	Fitting Nut 15mm / CW617N	0
451002LF	Fitting Stop END Main Body 22mm / CW511L	66
	Fitting Olive/Ring 22mm / H65	34
	Fitting Nut 22mm / CW617N	0
451003LF	Fitting Stop END Main Body 28mm / CW511L	69
	Fitting Olive/Ring 28mm / H65	31
	Fitting Nut 28mm / CW617N	0

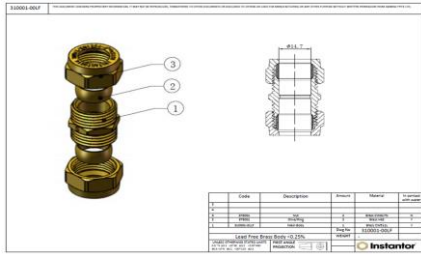


Figure 1: model 31000LF

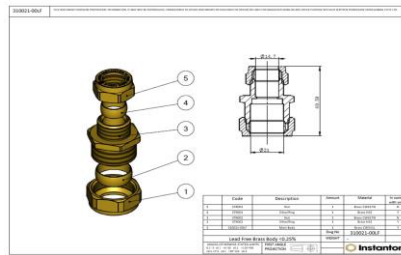


Figure 2: model 310021LF

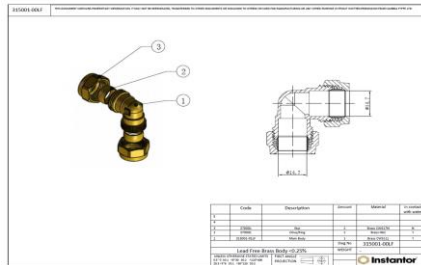


Figure 3: model 31500LF

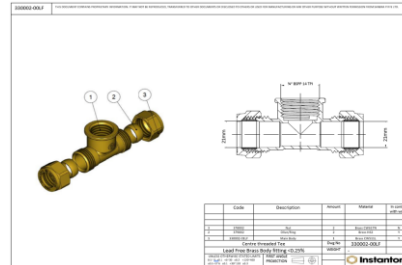


Figure 4: model 330002LF

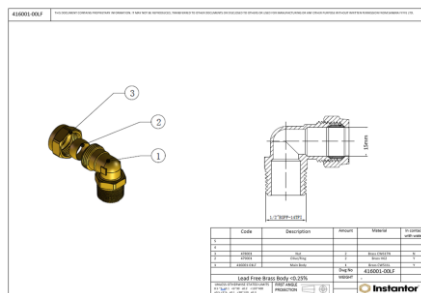


Figure 5: model 416001LF

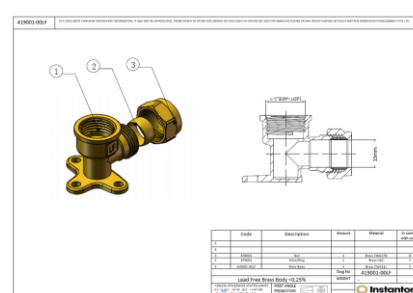


Figure 6: model 419001LF

3 Product evaluation and test procedure

To show compliance to the NSF/ANSI/CAN 372 standard, the product is evaluated and tested for lead content.

An analytical summary is prepared to determine the list of materials to be tested.

According to the standard, all materials with lead content specifications greater than zero and any materials, including coatings and their substrates, with wetted surfaces areas in excess of 10% of the wetted surface area of the product shall be tested on lead for verification.

In table 1. the wetted surface areas of each material/component is given. The company Sanbra Fyffe Ltd. has supplied the wetted surface areas to Kiwa Nederland B.V..

Based on the wetted surfaces and suppliers material lead content specifications, it is found that for the materials CW511L and H65 the lead content has to be determined.

The lead content is determined according to section 7.2 of the NSF/ANSI/CAN 372-2022 standard, "Lead content analysis in accordance with US EPA SW-846 Method 3050B and EPA SW-846 Method 6010C". The complete procedure is given in the laboratory test report PB2024003140 and PB2024003141.

4 Evaluation of test results

Calculations and evaluations are performed in accordance with the NSF/ANSI/CAN 372 – 2022 standard. The pass/fail criteria according to the NSF/ANSI/CAN 372 – 2022 are applicable for the results.

The following test package applies for the materials CW511L and H65:

- Lead (Pb)

The following test reports were evaluated:

- Lab report PB2024003140 dated 02-10-2024
- Sample ID: CW 511L body
- Production date: 20-03-2024
- Sampled date: 20-03-2024
- Lab report PB2024003141 dated 02-10-2024
- Sample ID: H65 Olive/ring
- Production date: 20-03-2024
- Sampled date: 20-03-2024

During the evaluation of the test results, the following results were found:

Table 2: Concentration of lead

Material / component	Measured value, [%wt]	Remarks
CW511L / Body	0.18	
H65 / Olive/Ring	0.0073	

All results are below 0.25 %wt, therefore no calculations of the weighted average lead content according to section 4.2 of the NSF/ANSI/CAN 372-2022 is required.

5 Conclusions

The conclusions of this NSF/ANSI/CAN 372 toxicology review are as follows:

- All tested and relevant materials/components of the Instantor leadfree compression fittings contain ≤ 0.25 %wt lead;
- All models of the Instantor leadfree compression fittings therefore comply to the NSF/ANSI/CAN 372 – 2022 standard.

Rijswijk, Oktober 25, 2024



Drs. Dirkjan van den Berg
Product Manager PGHA

Rijswijk,



D. Bosch
Toxicological assessor