

## REPORT

**Emission chamber test  
according to AgBB Evaluation Scheme**

**Product: WICONA WICLINE 75 evo**

**Report-No.: CAL18-102603-2a (replaced Report-No.  
CAL18-102603-1a from 10<sup>th</sup> August 2018)**

Sample-No: 18-065111-01  
Order-No: CAL-07615-18

Client: Hydro Building Systems Germany GmbH  
Einsteinstrasse 61  
89077 Ulm

Order date: 24<sup>th</sup> April 2017

Project manager: Christopher Teichmann

**Altenberge, 14<sup>th</sup> September 2018**

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## ATTACHMENET

Attachment 1: ADAM\_mask 18-065111-01\_vers. 2

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## 1 Introduction

WESSLING GmbH was contracted to perform an emission test chamber study of a metal window element "WICONA WICLINE 75 evo" according to AgBB-scheme (Status: February 2015).

The sample was provided by the manufacturer.

## 2 Test Data

### 2.1 Product Data

Name of product:	WICONA WICLINE 75 evo
Sample-No.	18-065111-01
Date of production	unknown
Type of packaging	Aluminium-composite foil
Date of receipt	29/06/2018
Period of examination	10/07/2018 – 07/08/2018

### 2.2 Test chamber specifications

Test-Norm	DIN EN ISO 16000-9 (2008-04) <sup>A</sup> / -11 (2006-06) <sup>A</sup> (Produktanalytik Altenberge)
Type	Self made, stainless steel
Volume	20 m <sup>3</sup>
Temperature	23 °C
Rel. Humidity	50 %
Exchange rate	0,68 h <sup>-1</sup>

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### 2.3 Preparation of test specimen

The preparation and application were performed according to the client's specification.

Loading	0,091	m <sup>2</sup> /m <sup>3</sup> (application: window)
Area-specific Air Exchange Rate	7,5	m <sup>3</sup> /m <sup>2</sup> h
Surface area of sample	1,81	m <sup>2</sup>
Test chamber load	10/07/2018	

### 2.4 Sampling

Air-sampling after 3 days					
Date	Parameter	Test-norm	Sorbens	sampling-volume	Sampling-time
13/07/2018	VOC	DIN EN 16516 (2018-01) <sup>A</sup>	Tenax-TA	5 L	50 min
	Aldehydes	DIN ISO 16000-3 (2013-01) <sup>A</sup>	DNPH	50 L	25 min
Air-sampling after 7 days					
Date	Parameter	Test-norm	Sorbens	sampling-volume	Sampling-time
17/07/2018	VOC	DIN EN 16516 (2018-01) <sup>A</sup>	Tenax-TA	5 L	50 min
	Aldehydes	DIN ISO 16000-3 (2013-01) <sup>A</sup>	DNPH	50 L	25 min
Air-sampling after 28 days					
Date	Parameter	Test-norm	Sorbens	sampling-volume	Sampling-time
07/08/2018	VOC	DIN EN 16516 (2018-01) <sup>A</sup>	Tenax-TA	5 L	50 min
	Aldehydes	DIN ISO 16000-3 (2013-01) <sup>A</sup>	DNPH	50 L	25 min

The analyses were carried out by WESSLING according to DIN EN 16516 (2018-01)<sup>A</sup> and DIN ISO 16000-3 (2013-01)<sup>A</sup> in Altenberge and Hannover .

### 3 General information

The health and well-being of occupants in building interiors may be influenced by possible pollution of indoor air. Such pollution of indoor air can be caused by construction materials, as many of them cover large surface areas in a room.

According to the Landesbauordnung (State Building Regulations) facilities shall be constructed and maintained in such a way that especially "life, health and natural resources are not endangered". Construction materials have to meet these requirements, particularly in the way that "dangers or unreasonable harassment are not caused by chemical, physical or biological effects".

Members of the AgBB-Committee (Committee for Health-related Evaluation of Building Products - "Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB)") in addition to the countries and the Federal Environmental Agency (UBA - Umweltbundesamt) are the Federal Institute for Risk Assessment (BfR - Bundesinstitut für Risikobewertung), the Federal Institute for Materials Research and Testing (BAM - Bundesanstalt für Materialforschung und -prüfung), the German Institute for Building Technology (DIBt - Deutsches Institut für Bautechnik), the Coordinating Committee for hygiene, health and environmental protection of the Standards Committee for Construction of DIN (Koordinierungsausschuss 03 für Hygiene, Gesundheit und Umweltschutz des Normenausschusses Bauwesen im DIN) and the Minister of Construction Conference - Conference of Ministers of Planning, Building and Housing Ministers and Senators of the States (ARGEBAU - Bauministerkonferenz - Konferenz der für Städtebau, Bau- und Wohnungswesen zuständigen Minister und Senatoren der Länder). The AgBB office is part of the Federal Environment Agency (Umweltbundesamt).

The Committee presented a procedural scheme for the health assessment of the VOC emissions from building materials used in interiors of buildings ("AgBB scheme").



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The effects of volatile organic compounds can range from unpleasant odour and irritation of the mucous membranes of the eyes, nose and throat to effects on the nervous system to long-term effects. VOC include substances with allergenic or allergy-enhancing properties and in particular with carcinogenic, mutagenic or reproductive toxic potency. For the toxicological evaluation of substances in construction products, AgBB has used the available information. Concentration levels were determined below which no adverse health effects are feared.

To determine the emissions from building products, test chamber studies are conducted and the following parameters are analyzed:

- TVOC Total Volatile Organic Compounds
- TVOC<sub>3</sub> TVOC after 3 days
- TVOC<sub>28</sub> TVOC after 28 days
- TSVOC<sub>28</sub> Total Semi-Volatile Organic Compounds after 28 days
- LCI lowest concentration of interest
- R-value sum of all quotients of individual material concentration to the LCI value of the individual material

The AgBB scheme gives following criteria for the emission test:

Substance	Criteria (3rd day)	Criteria (28th day)
Total VOC	≤ 10.000 µg/m <sup>3</sup>	≤ 1.000 µg/m <sup>3</sup>
Total SVOC	---	≤ 100 µg/m <sup>3</sup>
C-substances	≤ 10 µg/m <sup>3</sup> <u>Total</u>	≤ 1 µg/m <sup>3</sup> <u>per single value</u>
Total VOC without LCI	---	≤ 100 µg/m <sup>3</sup>
R-value	---	≤ 1

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Building products that meet these requirements are suitable for indoor use.

These criteria are also implemented in the AgBB / DIBt Auswertemaske (ADAM), an Excel sheet for the measurement results recording of emission tests with subsequent assessment by the "Procedure for health assessment of emissions of volatile organic compounds (VOC and SVOC) from Building Products" of the Committee for Health-related Evaluation of Building Products "Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB)" and the "Principles for the health assessment of indoor construction products" of the Deutsches Institut für Bautechnik (DIBt).



Testing laboratory accredited by DAkkS as per DIN EN ISO/IEC 17025. The accreditation applies to the accreditation scope defined in the certification attachment [D-PL-14162-01-00]. Accredited procedures are marked with \*. Test reports or excerpts from such reports must not be copied without the prior consent of WESSLING GmbH. Measurement results apply exclusively to the test objects received by us.

Managing Directors:  
Julia Weßling, Florian Weßling  
Company registered at  
HRB 1953 AG Steinfurt

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## 4 Results and Assessment

For the recording and assessment of the measurement results the AgBB / DIBt Assessment mask (ADAM) was used (see attachment).

### 4.1 TVOC<sub>3</sub>, TVOC<sub>7</sub> und TVOC<sub>28</sub>

The analysed values for total volatile organic compounds on day 3 ( $\leq 10,000 \mu\text{g}/\text{m}^3$ ) and day 28 ( $\leq 1.000 \mu\text{g}/\text{m}^3$ ) were below the limit values. The metal window element "WICONA WICLINE 75 evo" meets the criterion in terms of VOC emissions.

### 4.2 TSVOC<sub>28</sub>

There was no evidence of semi volatile compounds after 28 days in the test chamber air. The product meets the criteria terms of TSVOC<sub>28</sub> emissions.

### 4.3 C-substances<sub>3+28</sub>

There was no evidence of carcinogenic substances in the analyzed samples taken on day 3 and day 28. The product meets the criterion for the emissions of carcinogenic substances.

### 4.4 Total VOC without LCI<sub>28</sub>

There was no evidence of organic substances without LCI-value after 28 days in the test chamber air. The product meets the requirement of AgBB for VOC without LCI on day 28 ( $\leq 100 \mu\text{g}/\text{m}^3$ ).

### 4.5 R-value<sub>28</sub>

The R-value meets the requirements after 28 days.



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## 5 Summary

WESSLING GmbH was contracted to perform an emission test chamber study of a metal window element "WICONA WICLINE 75 evo" according to AgBB-scheme (Status: February 2015).

The sample was prepared according to the client's specification and placed in an emission test chamber according to DIN EN ISO 16000-9 (2008-04)<sup>A</sup> and DIN EN 16516 (2018-01)<sup>A</sup>. On day 3, 7 and 28 after loading the test chamber air was analysed for the content of VOCs and aldehydes. The results were recorded and assessed using AgBB / DIBt assessment mask (ADAM).

With regard to manner and extent of the performed examinations the sample complies with all requirements of the AgBB-scheme.



**Christopher Teichmann**  
Project manager



**Johannes Wächter**  
Scientist