

# ***Pfleiderer Industrie – Welcome aboard***

***Fa. Niemann***

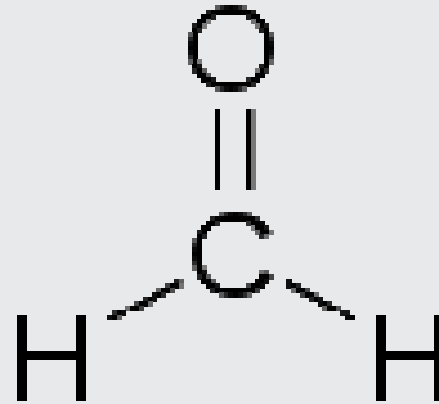
***April 2011***



## What is formaldehyde?

- *colorless, tang smelling gas*
- *natural occurrence in wood and in the metabolism of alive organism*
- *raw material for production of resin and adhesive*
- *important base material for chemical industry*

→ *replacement of formaldehyde is almost impossible*



# Formaldehyde

- **class E 1 is regulated by law**

*E 1 = < 0,1 ppm (parts per million)*

*→ one cm<sup>3</sup> formaldehyde per one m<sup>3</sup> of air*

- **class E 0,5 demanded by CARB phase 2 → level programm**

*E 0,5 = < 0,05 ppm (parts per million)*

*→ 0,5 cm<sup>3</sup> formaldehyde per one m<sup>3</sup> of air*

- *„blue angel“ = ecolabel for wood-based panels with low emission*

*→ 0,05 ppm*



# ***Formaldehyde test methods of wood-based panels in Europe***

- *chamber test according to EN 717-1*

- *derived methods*

  - *perforator method EN 120*

  - *gas analysis method EN 717-2*

  - *flask method EN 717-3*



# Certificate

## DECLARATION OF SAFETY

**Products: Untreated Particleboards**



Pfleiderer Industrie GmbH  
Holzstraße 10  
33332 Gütersloh / Germany

The untreated particleboards produced by Pfleiderer Industrie GmbH are applied for timber frame constructions, for furniture making, interior furnishings as well as for general construction purposes.

The boards are analyzed by independent testing institutions twice per year for formaldehyde emission and other hazardous substances.

All products are manufactured in accordance with the stipulations of EN 312 (untreated particleboards).

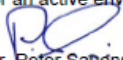
Furthermore, the core boards fulfil the following criteria:

Emission Class E1 (Perforator values)	< 0,5 mg / 100g bone dry board, defined as sliding half-year values
Content of pentachlorophenol	< 3 mg/kg
Content of lindane	< 1 mg/kg

This safety declaration is valid one year from the date of issue and includes the particleboard type P2.

The company Pfleiderer Industrie GmbH is a member of the Quality Association for Wood Based Panels (Qualitätsgemeinschaft Holzwerkstoffe e. V.)

The Quality Association for Wood-Based Panels is an alliance of leading producers of wood-based panels. The members of this association manufacture their products in accordance with the pertinent EN-Standards. Furthermore, they have engaged themselves for an active environmental protection and social responsibility towards their German base.

  
Dr. Peter Saterwein  
Head of the notified body

Gießen, 2 August 2010

QUALITÄTSGEMEINSCHAFT HOLZWERKSTOFFE e.V.  
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Identification number: 1344 (notified body)

# CARB

- *CARB (Californian Air Resources Board)*
- *Requirements on wood-based panels*
- *level program*
- *limit value is a chamber value*
- *direct correlation between chamber method and perforator method necessary*
- *phase 2 (0,05 ppm)*
- *high demands on quality management*
- *introduction of a TPC (external quality control by WKI)*
- *the plants Gütersloh, Nidda and Neumarkt are certified*



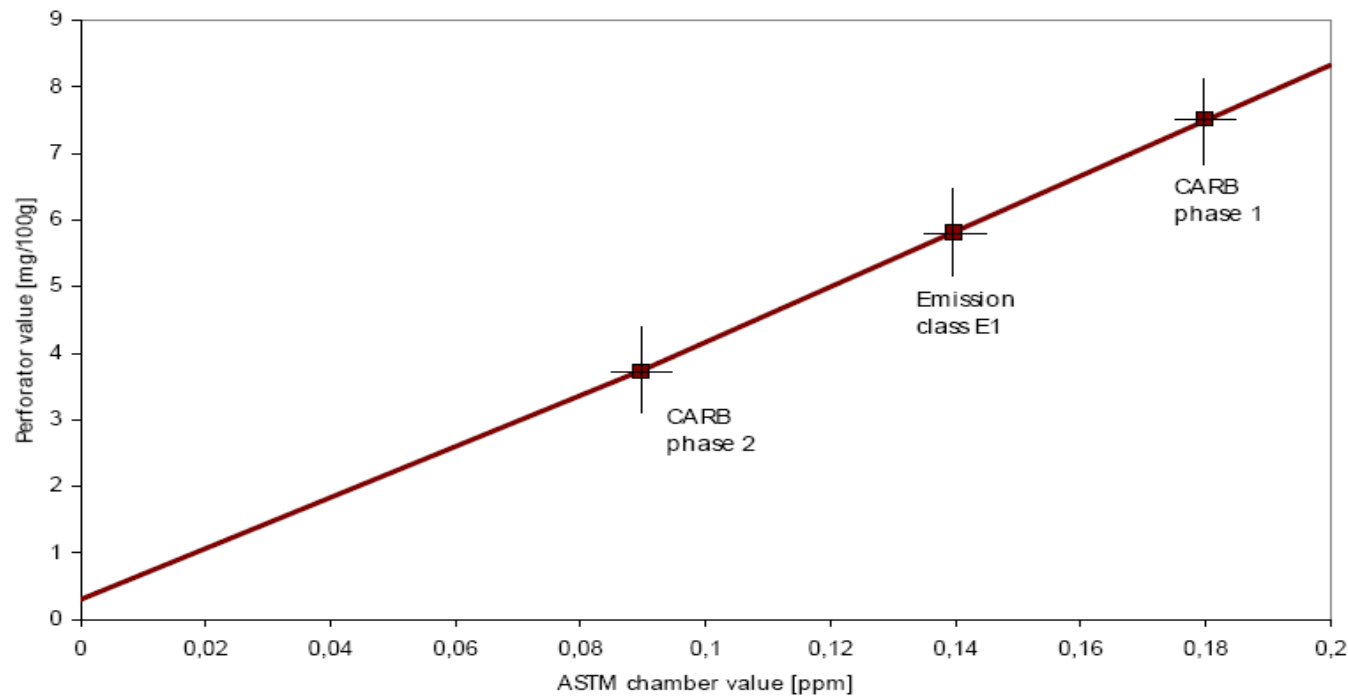
## *Level program*

Product	Jan 1, 2009	July 1, 2009	Jan 1, 2010	Jan 1, 2011	Jan 1, 2012	Jul 1, 2012
HWPW-VC	0.08 ppm	----	0.05 ppm	----	----	----
HWPW-CC	----	0.08 ppm	----	----	----	0.05 ppm
PB	0.18 ppm	----	----	0.09 ppm	----	----
MDF	0.21 ppm	----	----	0.11 ppm	----	----
Thin MDF	0.21 ppm	----	----	----	0.13 ppm	----

Folie 21

## Chamber and perforator method

### Idealised correlation between ASTM chamber and perforator value for particle boards





## ***Comparison between European and North American test conditions by chamber method***

	<b><i>EN 717-1</i></b>	<b><i>ASTM E 1333</i></b>
<i>temperature</i>	23 °C	25 °C
<i>rel. air moisture</i>	45 %	50 %
<i>air change number</i>	1,0/h	0,5/h
<i>loading factor</i>	1 m <sup>2</sup> /m <sup>3</sup>	variable
<i>emission limit</i>	0,1 ppm	variable

## ***Comparison of both test methods***

### ***European system of evaluation***

- *based on the chamber test*
- *realisation with derived methods*
  - *perforator method*
  - *gas analysis method*
  - *flask method*
- *Test under equal conditions – Keeping the emission value of **0,1 ppm***

### ***North American system of evaluation***

- *based on the chamber test*
- *derived methods are subordinated*
- *limit values for emission and loading factors are different for the several wood-based panels*

## **EPF-S**

- *test method: EN 120 perforator method*
- *limit values by perforator method for raw chipboards according to EN 312: (4,0 mg/100g)*
- *limit values based on CARB Phase II and Ikea*
- *test method: EN 120 perforator method*
- *limit value by perforator method for MDF raw (>8mm) according to EN 622-5: (5,0 mg/100g)*



***Thank you for your partnership!***



***Together we will achieve even more!***

***“Coming together is a beginning;  
keeping together is progress;  
working together is success.”***

*Henry Ford*