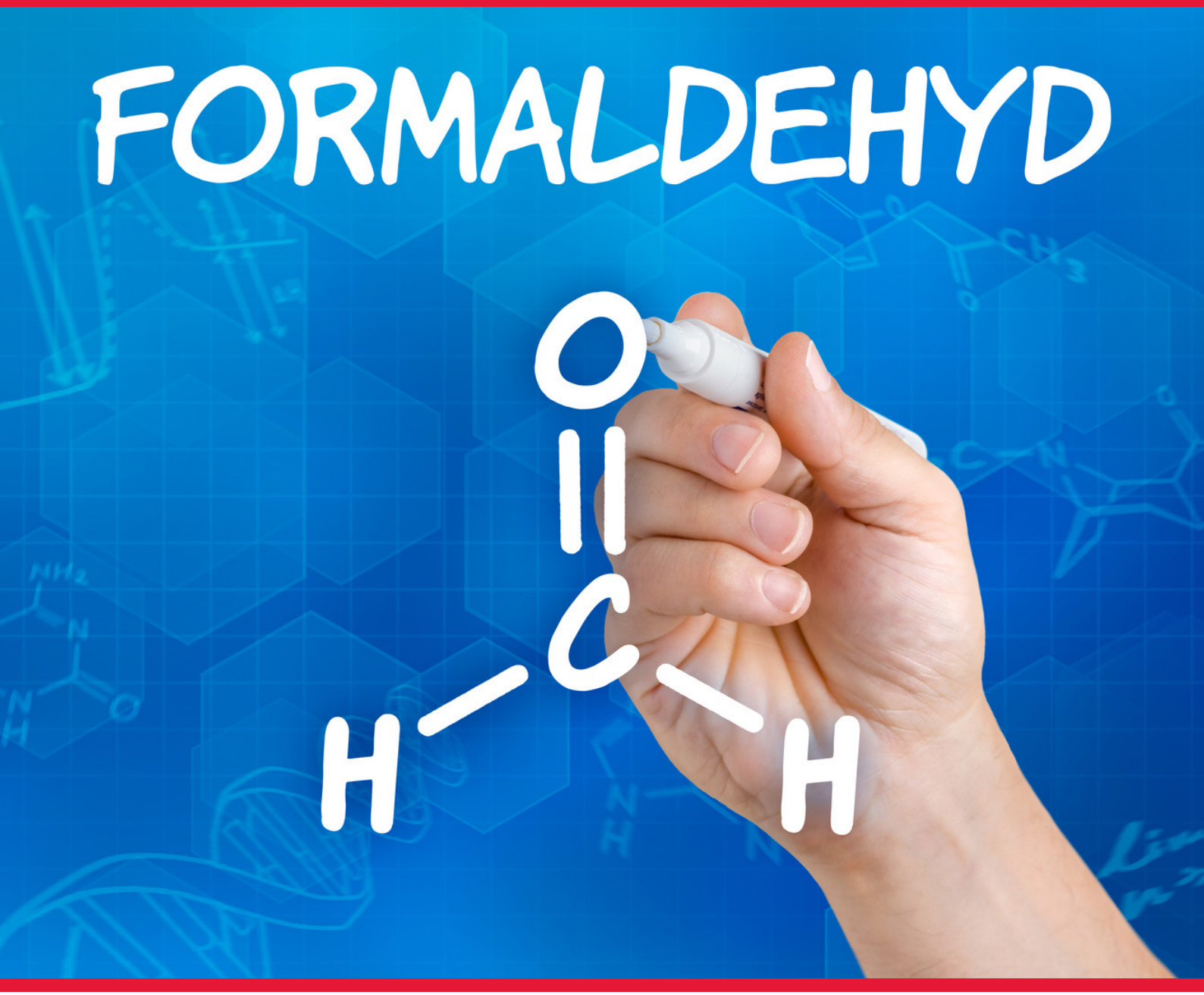
Formaldehyde emission

Jowacoll® dispersion adhesives
High bond strength – Low formaldehyde emissions



Jowat Klebstoffe

New Jowacoll® PVAc dispersions – high strength values and also very low in formaldehyde

Among consumers, awareness of the need for healthy living conditions has been increasing. Ecological aspects like the possible emissions from building products play a major role in meeting that demand.
“Green living” as well as a variety of ecological seals for the classification of emissions have been in the focus of the media on a daily basis. Meanwhile, low-emission products are not just another trend – they represent a genuine shift in thinking and consumers start to consider the effects those materials have in their daily lives.
The PVAc dispersion adhesives of the **Jowacoll®** series are very low in formaldehyde and provide a solution for a wide range of applications due to their versatility.

Formaldehyde is a chemical that has been used for many years and which was originally used as a preservative to increase the shelf life of products. Due to technological processing reasons, several basic adhesive components like polyvinyl alcohol and vinyl acetate monomer already contain small amounts of formaldehyde. This is true for all adhesives based on polyvinyl acetate (PVAc). The formaldehyde content is considerably higher in reactive D3 and D4 dispersions compared to classic PVAc dispersions. This is due to the crosslinking reaction of those PVAc dispersion adhesives which facilitates higher resistances.
Formaldehyde is split off in a so-called condensation reaction.

Following extensive analyses, Jowat have succeeded in substantially reducing the formaldehyde content by optimize the manufacturing procedures. For instance, formaldehyde emissions of **Jowacoll® 103.10** have been reduced by up to 80 % while the water and heat resistance of the product has not changed. Therefore, emissions of the reactive **Jowacoll®** D3 and D4 dispersions are below the permissible limits under different guidelines, and in some products even near the limit of detection.

INFO: Emissions
There are two types of emissions: from the liquid adhesive and from the cured adhesive film. Processors of the liquid adhesive are exposed to the former, and users of the end product are exposed to the latter.
The decisive limit values for the processor are the so-called Occupational Exposure Limits (OEL). These limits are measured directly at the workplace. Using appropriate measurement methods, it is, however, also possible to determine the total content of harmful ingredients like formaldehyde in the product itself.
There are a number of different classification methods available for evaluating the emissions from a finished part or from a product, i.e. the emissions from the cured glue film. The French VOC regulation with its rating from A+ (very low emissions) to C (highest permissible emissions level) is a very widely used classification system.
Currently established measurement procedures determine the total amount of emissions (TVOC) as well as the emissions of ten individual substances, including formaldehyde.

INFO: Formaldehyde
Formaldehyde is a colourless substance with a strong odour, which is gaseous at room temperature. In addition to its use and presence in different products, formaldehyde is also present in nature. Formaldehyde can be detected e.g. in the blood of mammals, in apples, grapes, and in wood. For instance, a kilogram (about two pounds) of apples has a formaldehyde content of up to 22 mg, and fresh fish up to 100 mg/kg. One kilogram of liquid **Jowacoll® 103.10** has a formaldehyde content of approx. 49 mg.
If processed incorrectly, formaldehyde can cause allergies as well as irritation of the skin, eyes, and respiratory tract. High concentrations of formaldehyde are probably carcinogenic. For further information, please refer to our Safety Data Sheets. (upon request)

The currently established method for determining VOC emissions from building products is described in the standards EN 16516 and ISO 16000 ff. The product is stored in a test chamber for a defined test duration of 28 days to get an indication of its emissions in the long term. Because that procedure is very expensive and time-consuming, the in-can method has become established for measuring the VOC emissions from the wet adhesive film. High Performance Liquid Chromatography (HPLC) facilitates a fast formaldehyde analysis.

Jowacoll® 103.10

General-purpose PVAc dispersion adhesive with high heat resistance.

Durability class		D3
Viscosity	[mPas]	approx. 11.000
Solids content	[%]	approx. 50
pH value		approx. 3.0
Crosslinking agent (optional)		Jowat® 195.40 (5 %)

Jowacoll® 103.30

PVAc dispersion adhesive with very high initial strength and heat resistance.

Durability class		D3
Viscosity	[mPas]	approx. 12.500
Solids content	[%]	approx. 53
pH value		approx. 3.0
Crosslinking agent (optional)		Jowat® 195.40 (5 %)

Since 01 January 2012, new building products, furnishing and decoration products introduced on the French market must be classified and labelled according to their emissions. The permissible limits are based on the total VOC emissions (TVOC) as well as on the evaluation of 10 individual substances, including formaldehyde (values in micrograms per m³). **Jowacoll® 103.10 and 103.30 meet the requirements for a A+ classification.**

Note: The products listed only represent a limited selection of the available product portfolio. Our service and consultation team from Sales and Product Marketing will be pleased to provide specific information, to select the product suitable for your process.

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