



Formaldehyde removal coat

MOLDEFEAT

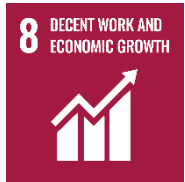
Technology from Japan

<https://moldefeat.com/en/>



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Necessity of formaldehyde Emission measures and how to do that



丸昌産業株式会社

MARUSYO SANGYO CO.,LTD.

Do you know the formaldehyde?



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Formaldehyde substance is included in pressed-wood products, such as particleboard, plywood, fiberboard, glues and adhesives components of wood. There is an essential component to ensure water resistance and toughness. It is used a lot in many products, such as building materials and wooden furniture.

However, **formaldehyde is categorised as a carcinogen by IARC**. Particularly recognized as a substance that causes cancer and leukemia. It also increases the risks to our health, such as sick building syndrome*¹ and chemical sensitivity.

IARC: International Agency for Research on Cancer



⚠ Sick Building Syndrome

Sick building syndrome is an allergic reaction to indoor chemicals. The presence of chemicals such as formaldehyde indoors can cause symptoms such as coughing, itchy skin, and fever.



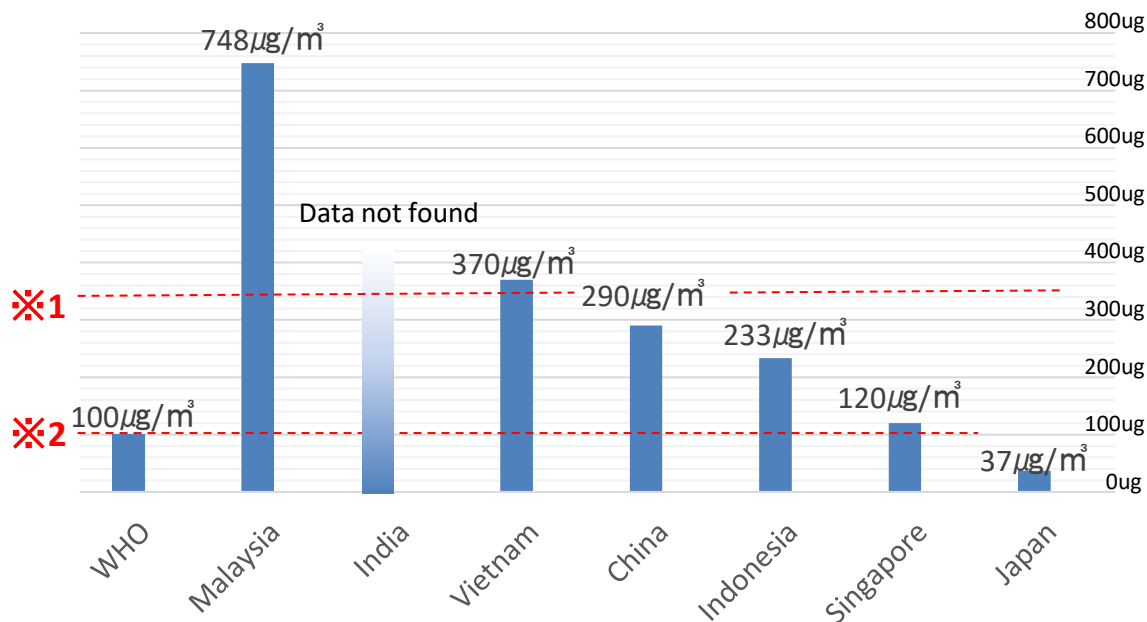
Current situation of formaldehyde emission



WHO established the indoor air quality guideline that the formaldehyde exposure limit is up to **0.1mg (100 μ g)/m³ = (0.08ppm) for indoors.**

However, there are lots of countries that can not reach this regulation level.

Formaldehyde level at indoor



WHO Guidelines for Formaldehyde

- $\times 1$: The lowest concentration reported to cause sensory irritation of the eyes in humans is 0.36mg (360 μg) /m³ for four hours.
- $\times 2$: 30-minute intervals during a day in a room with a concentration of 0.1mg (100 μg) /m³

Reference: WHO guidelines for indoor air quality: selected pollutants, Page xvii

<https://www.who.int/publications/i/item/9789289002134>

*Under our market survey

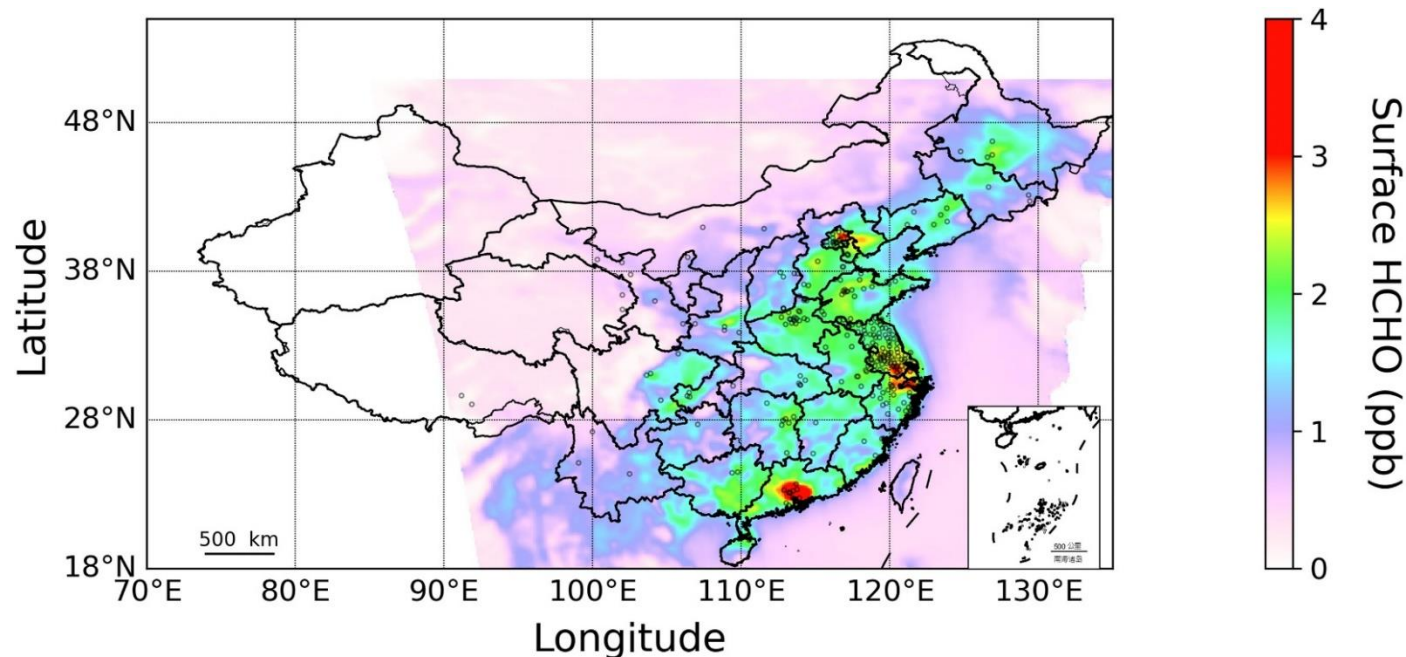
History of human damage caused by formaldehyde



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The potential health impact of low-level ambient formaldehyde gas has been historically overlooked.

For example, there is related ambient formaldehyde gas in 5,325,585 deaths in 275 Chinese local governments nationwide between 2013 and 2018.



Reference: Ambient formaldehyde and mortality: A time series analysis in China

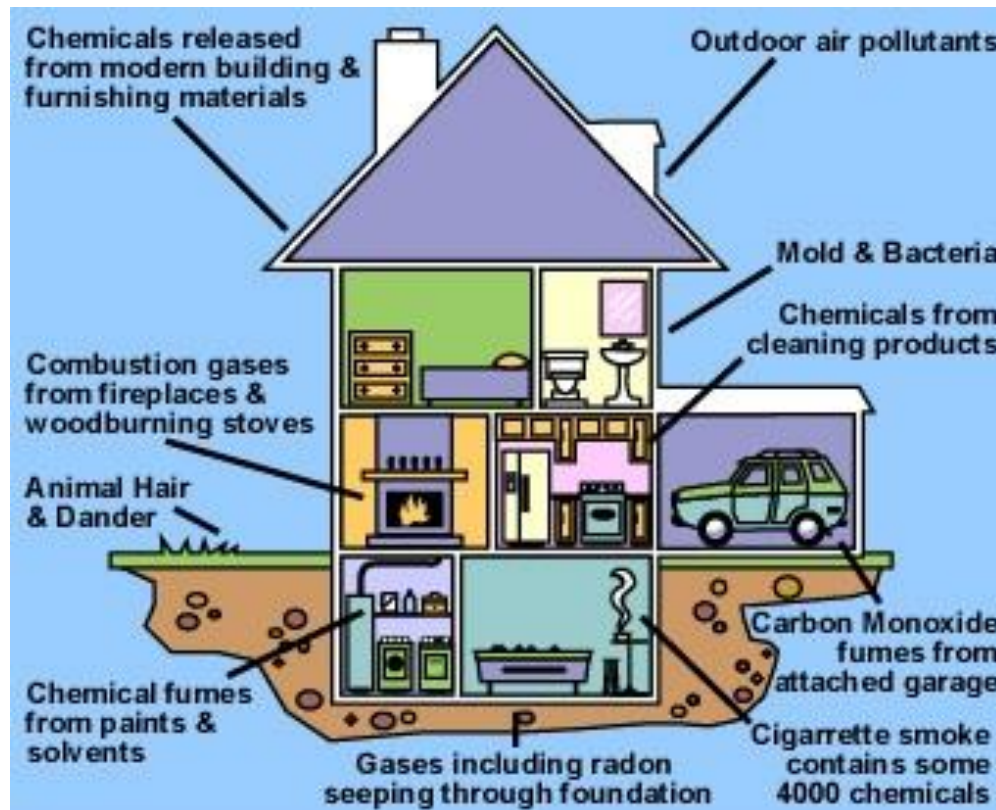
<https://www.science.org/doi/10.1126/sciadv.abm4097>

Hidden Formaldehyde in home



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Formaldehyde gas is emitted by building materials such as particleboard, fiberboard, and plywood, as well as from combustible materials such as cigarettes and fireplaces.



The air inside of homes and buildings is often more polluted than outdoor air with levels of certain chemicals being many times higher than they are outside. There's little doubt, inhaling these pollutants isn't good for your health and, in some cases, it's outright dangerous.

Photo Courtesy of EPA

Formaldehyde measure is necessary



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Governments in each country are beginning to regulate the amount of formaldehyde used and emissions. These regulations are predicted to become more stringent in the future in the world.



2003 Japan

0.1mg/m³ Indoor formaldehyde level

2020 China

0.088mg/m³ Indoor formaldehyde level

USA emission regulation
2016.6: 0.062 -0.14mg
2019.3.: Import goods
2024.3: laminate goods

2023 Vietnam

The content of formaldehyde in wood glue does not exceed 1.4wt%.

2024 Malaysia

In 2019, MTIB* issued the draft legislation already.
Plywood, Particle board, Fiber board :E1 ,E0 or **Super E0**

*MTIB: Malaysia Timber Industry Board

Starting August 6, 2026, by EU

On July 17, 2023, the EU issued the regulation to regulate formaldehyde and formaldehyde-releasing substances in articles. The emission level should be under **0.062mg/m³**.

India

IPIRTI*1 is requesting BIS standardization.
Many panel manufacturers use CARB*2 standards to standardize formaldehyde emissions from their products to ensure user safety.

※1, Indian Plywood Industries Research and Training Institute

※2, California Air Resources Board in the USA

Who will do what?



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Measures to prevent formaldehyde emissions must be taken by companies that manufacture particleboard, plywood, fiberboard and process wood products such as furniture and interior design companies.



There are two ways to reduce formaldehyde emissions.

1. Use of formaldehyde-free adhesives

Advantages: Emissions ratio is reduced to the minimum.

Disadvantage: Decreased durability.

Requires re-examination of certification.

2. Use of formaldehyde remover

Advantage: Easily reduces formaldehyde emissions.

Disadvantages: Increased production process.

It may not be sustainable.

Get a chance or lose an opportunity?



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Companies that cannot reduce the amount of formaldehyde emission will be weeded out.

Present

Trend of formaldehyde standard in wood market.

US standard: Carb-P2

European standard : E1,E2



Near future

More stringent standard, such as F☆☆☆☆, Super E0 or other new Stricter regulations may be issued.

But we have this problem solution.

Measures to remove formaldehyde



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The best choice is **Moldefeat** for these provision.

It **Moldefeat** is a formaldehyde removal coat that can be sprayed on wood chips before press forming or used for post-processing on surfaces such as plywood, laminated and furniture.

Therefore, Your products can pass regulations in various countries!

Product advantage

- ◆ Long-lasting effect.
- ◆ The amount of formaldehyde removed can be controlled.
- ◆ Free of heavy metals and Safety for the human body.
- ◆ It is registered with UNIDO which is one of the United Nations institutions .

Advantage to use

- ◆ It is possible to manufacture high-value-added products at low cost.
- ◆ It is possible to make products that comply with the formaldehyde regulations of each country.
- ◆ Differentiate yourself from other companies and secure a sales advantage.



3 GOOD HEALTH AND WELL-BEING



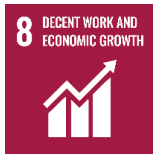
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Newly circulation of products and consumers



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8 DECENT WORK AND ECONOMIC GROWTH

Implications
✂ New product planning and development.
✂ Stable factory operation.

1. Requirements for products with reduced formaldehyde emissions from domestic and international.

2. Manufacture and sale of products that meet customer requirements

Implications
✂ Accelerate new product development.
✂ Accumulating technical capabilities to meet customer demands.

SUSTAINABLE DEVELOPMENT GOALS

Achieving its sustainable development goals

4. Improving corporate profits and securing funds for creating new products



3 GOOD HEALTH AND WELL-BEING



11 SUSTAINABLE CITIES AND COMMUNITIES



13 気候変動に具体的な対策を



17 PARTNERSHIPS FOR THE GOALS

Implications
✂ Fastest acquisition after Each county standard establishment
✂ Expansion of exports to EU, USA, and other countries

3. Improving customer satisfaction and increasing sales volume



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Moldefeat User's comment



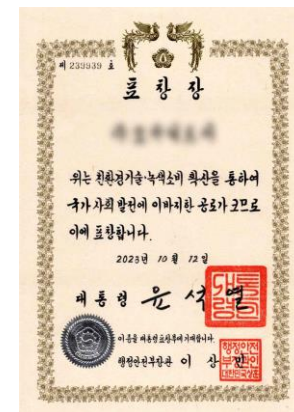
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Japanese furniture manufacturer comment

- Our hotel customer plans to use furniture with reduced formaldehyde so that guests can use the hotel with peace of mind.
- Furniture users are becoming increasingly aware of formaldehyde. Therefore, commercially available furniture with formaldehyde absorption function can be used to advertise that it is useful for indoor formaldehyde countermeasures.

Korean building material manufacturer comment

- By using our products, our clients were able to reduce the indoor formaldehyde density to below-standard values.
- Our company was commended by the President of South Korea for contributing to the nation's social contribution through the use of new environmental technology.



Korean presidential commendation letter

Chinese building material manufacturer comment

- The method of coating interior boards is not difficult, so we process and ship them according to the design requested by our customers.
- Since we can calculate the amount of formaldehyde removed, we can reduce costs by not using unnecessary amounts.

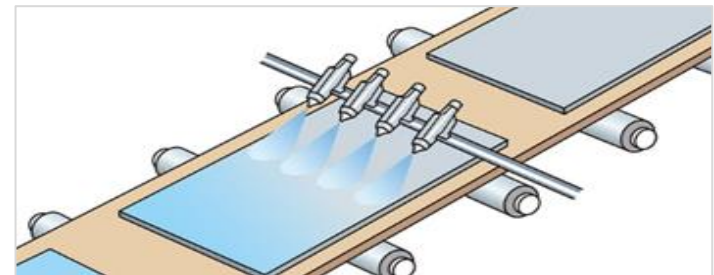
How to use it?



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We provide **free support** for formaldehyde countermeasures, such as how to apply **Moldefeat** to products, processing methods at factories, and testing of test samples.

【Usage example】



There are various processing methods such as spray application and roller application. Application work will be carried out using existing equipment as much as possible.

What is the competitive of Moldefeat?



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Current common formaldehyde measures

- ✓ Use low formaldehyde glue.
- ✓ Wood is stored for several months to allow formaldehyde to volatilize naturally.

Disadvantage

- ✓ Low formaldehyde glue has low adhesive as compared with normal glue.
- ✓ Formaldehyde is still contained on glue or wood, and there are some risks formaldehyde comes out from wood products again.

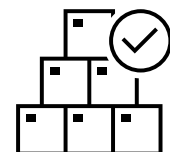
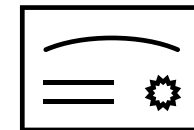


Competitive Strength of Moldefeat

- ✓ **Low cost & High removal effect**
- ✓ **No affect with adhesion.**

Not change, But change.

The formaldehyde removal function can be added without changing the appearance by using existing equipment.



High quality and safe products.

Consult us and expand your business



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**It will be too late if the regulations become strict.
Start Now, shall stay a step ahead of your competition.**

Now is the chance to make your product stand out in the market,
provide safe products to your client, and increase your sales.

Let's create a new market together!



Consultation desk and Contact us



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We are a Japanese company. Feel free to contact us via email.

Company information

Company:	MARUSYO SANGYO CO.,LTD.
Initiation:	1. April. 1923
Capital:	10 million JPY
Address:	171, Tajimacho, Sanoshi, Tochigi, 3270031, Japan. Phone: (+81) 283 221 901
Description of business:	<ul style="list-style-type: none">• Textile Produce/Development• Chemical Produce/Development• Eco product R&D• OEM R&D
Product HP	<ul style="list-style-type: none">• https://moldefeat.com/en/

First contact via email

kaihatu@marusyosangyo.jp

From website

<https://moldefeat.com/en/>

