



Technical Data Sheet

4055

Wood Bliss® 'high-C'

Long-lasting wood mineraliser

Original formula

Use: indoors

Phase: aqueous

Wood-boring insects find the nutrients they need to survive in wood by breaking down cellulose, lignin or starch. At this stage, the insect is merely a wood-boring larva. This larva will live in the wood for 1 to 5 years, or even up to 10 years. It then metamorphoses into an adult insect, emerges from the wood through an exit hole and no longer feeds, but reproduces by laying eggs (40 to 100) in the cracks in the wood. The adult insect lives for only about 20 days.

The vast majority of insects found in timber belong to the order Coleoptera (woodworms, longhorn beetles) or Isoptera (termites). In timber, the longhorn beetle (*Hylotrupes bajulus*) creates exit holes measuring approximately 0.5 cm, whilst the woodworm creates exit holes measuring 1 to 2 mm.

Wood infested by *Serpula lacrymans*, commonly known as the dry rot fungus or weeping dry rot, poses a risk of significant structural deterioration. This fungus is one of the most destructive agents causing wood decay in buildings. Dry rot, a type of wood-decaying fungus, feeds on water, minerals and organic matter such as wood. In damp timber, the dry rot fungus (*Serpula lacrymans*) will penetrate it and acidify it. Through enzymatic action, the fungus breaks down the timber and feeds on it.

Properties:

Solvent-free and biocide-free, *Wood Bliss® High-C 4055* is a complementary product to

Wood Bliss® 4050. It has four complementary actions:

- ✓ It reinforces the treatment in the event of a significant attack by longhorn beetles.
- ✓ It reinforces the treatment in the event of a severe fungal infestation.
- ✓ It strengthens, consolidates and hardens wood that has become soft and brittle.

✓ It makes the wood fire-resistant: 'B-S1-d0' fire reaction rating.

In all cases, the work will begin with the application of Wood Bliss® 4050.

Down to the depth of penetration, the product removes from the wood the nutrients sought by harmful insects. At the same time, it renders the wood unrecognisable to them, so that after treatment, the insects can no longer recognise the wood as a food source. Through a physical process of wood mineralisation, Wood Bliss® 'High-C' – a highly concentrated, biocide-free formulation – provides the wood with additional protection against harmful pests. It has no harmful effect on living organisms. Contains neither biocides nor fungicides. The combination of Wood Bliss® and Wood Bliss® High-C makes the timber fire-retardant in accordance with standard EN 13501.

Galtane is committed to regenerative economic models. To preserve building materials, nature works with us and we work with nature.

Through a physical process, Wood Bliss® 'high-C', a liquid silicate solution, petrifies the wood. In other words, the wood is silicified. Petrified wood lasts for geological time scales. It is an effective method for extending the lifespan of wood.

Wood treated with Wood Bliss® 'high-C' should not be regarded as polluting construction waste.

Ten-year effectiveness guarantee.

Wood Bliss® emits no volatile organic compounds other than water. It has been developed using a process patented worldwide. We would like to emphasise that the effectiveness of Wood Bliss® does not diminish over time; in fact, it increases. Wood Bliss® is a natural wood treatment recommended by ÖKO-TEST.

Caution: *due to its high alkalinity, a more or less significant colour change may be observed on acidic woods (oak, chestnut, Douglas fir, etc.). Carry out preliminary tests!*

For a colourless treatment (parquet flooring, furniture, window frames, etc.), see HM16 ref. 4010

■ Which product should you choose between HM16, Wood Bliss® and Wood Bliss® High-C?

The question to ask yourself is: 'Is it important to preserve the wood's natural colour?'

If **so**, then opt for HM16. HM16 is a preventative and curative treatment specifically for woodworms. Woodworms are wood-boring insects that create exit holes approximately 1 mm in diameter. These are often the wood-boring insects you'll find in furniture and wooden floors. HM16 will not alter the colour of the wood.

If **not**, then choose Wood Bliss®. Wood Bliss® has a broad spectrum of action.

In the event of a recurrence or to treat longhorn beetles, inject *Wood Bliss® High-C* into the wood.

Where dry rot or other wood-decaying fungi are present, complete the treatment by brushing on *Wood Bliss® High-C*. This includes any new joists to be installed within masonry. Particular care must be taken with end-grain wood: the cut surfaces.

Process:

Wood treated with *Wood Bliss® High-C* is physically altered through a process of wood mineralisation. The wood mineralisation process involves impregnating the wood cells with liquid silicate (liquid glass). Wood-boring insects and wood-decaying fungi will no longer recognise the timber as a source of nutrients (starch, mineral salts, lignin). As the timber is no longer palatable, harmful wood-destroying pests do not develop, or cease to develop, where the timber has been treated with *Wood Bliss®*.

The cellulose and hemicellulose in the wood are saturated with liquid silicate (liquid glass), which also hinders the mechanical development of fungi and wood-boring insects. Silicate crystals form within the wood cells. The wood remains wood; it is not chemically modified or poisoned but is physically rendered inaccessible and undetectable by wood-destroying organisms.

Method for use where timber is attacked by wood-destroying fungi:

Through physical and mechanical action, the liquid silicates harden the mycelia (carpophores – fruiting bodies) of wood-decaying fungi. The mycelia are crystallised and their growth is impeded.

In accordance with the EU Biocidal Products Regulation EN 528/2012 and the judgement of the Court of Justice of the European Union of 19 December 2019, we emphasise that *Wood Bliss* operates on a specific physical and mechanical principle.

Through a crystallisation process, the nutrients sought by harmful organisms in the wood are masked and rendered undetectable.

The relevant Swiss Ordinance 813.12 is similar to the European regulations; see: <https://www.fedlex.admin.ch/eli/cc/2005/468/fr>

Wood Bliss® High-C also acts as a mineral-based flame retardant thanks to a combination of a non-flammable, PFAS-free barrier, thermal absorption through evaporation and the suppression of flammable gases. With *Wood Bliss® High-C*, a delay in ignition time and a reduction in the rate of fire spread are observed.

Further information: after treatment, the wood retains its flexibility. This is because the product penetrates the wood to a depth of less than one millimetre. This is why pressure-injection is also required for wood.

Use:

Fire-retardant treatment for wood, both curative and preventative, based on over 35 years'

-  Protection of timber against **wood-decaying fungi** (basidiomycetes: dry rot (*Serpula lacrymans*), cellar conehead, cellar polypore, *Poria vaillant*, fence lenzite, *Coriolus versicolor*) – European Standard EN 113
-  Protection of timber against **wood-boring insects** – European Standards EN 46 and EN 73

- Protection of timber against **termites** – tested by M.F.L. = Mississippi Forest Laboratories (USA)
- Protection of timber against the **spread of fire and smoke formation** – tested by U.L. = Underwriters Laboratories (USA) and EMPA (Switzerland).
- Fire-retardant treatment and reaction to fire in accordance with the EN standard:

Fire-retardant properties: test results in accordance with the European reference standard have confirmed **Wood Bliss High-C's** ability to make structural timber fire-retardant. It meets the requirements for residential construction, office buildings, educational establishments, etc. Tests carried out in 2019 and 2020 by the University of Stuttgart in accordance with standard EN 13501-1:2018 on Douglas fir and CLT panels impregnated with one coat of *Wood Bliss ref. 4050* and two coats of *Wood Bliss High-C* yielded the following excellent results: **B-S1-d0**

Fire reaction class: **B** – very difficult to ignite (M1 according to the French standard)
 Smoke production: **S1** – low smoke emission
 Formation of flaming droplets: **d0** – none

■ **Wood consolidation in the restoration of historic buildings:**

Pests gnaw at the timber, causing a loss of mass and stability.

Wood Bliss® fills the feeding tunnels, strengthens cracked timber and thus replaces the lost timber mass. Among other benefits, the application of this product helps to avoid costly renovation techniques and the removal of infested timber.

■ **Reduction in toxic emissions:**

Following the application of *Wood Bliss® High-C*, *Wood Bliss® High-C* can reduce toxic emissions from biocides such as hexachlorocyclohexane (lindane) and dichlorodiphenyltrichloroethane (DDT), and by 70 per cent for pentachlorophenol (PCP) from treated timber used in construction between the 1950s and the 1990s.

See the relevant Swiss regulations on this subject:

<https://polludoc.ch/fr/materiel/produits-de-conservation-du-bois-pcp-lindane-etc>

- Suitable for: all categories of timber: roof structures, framework, beams, etc.
 on masonry
 in environments where animals are kept (stables, barns, beehives, kennels, cages, aviaries, etc.)

Caution: due to its high alkalinity, a more or less significant change in colour may be observed on acidic woods (oak, chestnut, etc.); carry out tests beforehand!

The effect is immediate in cases of wood damage caused by harmful insects and mould.

Guaranteed effectiveness: In accordance with the application instructions **AND** the EMPA tests EN46 + EN73 No. 125402A, 125402/1, EN 113 No. 117914 P2 and 169361, **and** depending on the depth of treatment, the effectiveness of Wood Bliss® is guaranteed for 10 years.

Please note that we have no influence over the actual practical application of *Wood Bliss®* by the user and that we cannot under any circumstances be regarded as the contractor for the work to be carried out. Our liability is limited to the value of the products supplied or used.

Composition: Renewable plant and mineral raw materials: potassium carbonate, cellulose, water, silicic acid.

Contains no insecticides or biocides. This product is not a probiotic; it contains no bacterial species or enzymes.



The Ressourcen 'R' label indicates the percentage of a product's ingredients by source. Green represents plant-based materials, yellow represents mineral materials and red represents fossil-based materials.

Composition of *Wood Bliss High-C®*: 65 per cent plant-based and 35 per cent mineral.

Emissions: Indoor air emissions: A+; in accordance with ISO 16000-9

The emission limit for achieving class A+ is 1000 µg/m³

The emission level of Wood ^{Bliss®}High-C is 5 µg/m³, which is 200 times lower than 'A+'!



* Information representing emissions into the air of volatile substances posing a risk of toxicity through inhalation, on a scale ranging from class C (high emissions) to A+ (very low emissions)

Important note: generally speaking, air emissions – even when labelled 'A+' – do not in any way certify a product's composition or *natural origin*.

Preparation:

Once you have acquired the product, we assume that you possess the necessary skills to apply it.

Depending on the type of surface to be treated, you are advised to check that the product is suitable for the intended use.

Wooden surfaces (planed or unplaned) must be sound: absorbent, clean, dry, free from grease and dust; remove all bark, brittle and worm-eaten parts, water-repellent substances and sawdust, as these will prevent *Wood Bliss High-C®* from penetrating.

Wear gloves and protect your eyes. Protect metal and glass surfaces (windows, windscreens, etc.), natural stone, aluminium, lacquered surfaces, floors, etc. In the event of splashes, rinse immediately and thoroughly with water. Risk of irreversible stains. However, there is a way to remove these marks from glass by cleaning it with a damp sponge and clay stone. Repeat if necessary.

Instructions for use:

Shake the product before and **during** use. Apply at 12-hour intervals using a brush or a roller, or by spray application if necessary (pressure 50 to 60 bar). Do not apply at temperatures below 5°C. Do not glue treated wooden parts together.

Impregnate all surfaces of the wood, including cut surfaces (do not plane after treatment).

After treatment, a whitish film may appear. This is a sign that the product is working (crystallisation). If finishing visible timber: sand down the crystalline film. After a few months, the colour of the timber will lighten completely. Softwoods will remain very light in colour

**Fire-retardant treatment and reaction to fire**

PFAS-free fire-retardant properties: test results in accordance with the European reference standard have confirmed *Wood Bliss High-C's* ability to impart fire-retardant properties to structural timber. It meets the requirements for residential construction, office buildings, schools and other such establishments... Tests carried out in September 2019 by the University of Stuttgart in accordance with standard EN 13501-1:2018 on Douglas fir impregnated with one coat of *Wood Bliss* ref. 4050 and two coats of *Wood Bliss High-C* ref. 4055 showed the following excellent results: **B-S1-d0**

Fire reaction class: **B** – very difficult to ignite (M1 according to the French standard)

Smoke production: **S1** – low smoke emission

Formation of flaming droplets: **d0** – none

Efficacy: As the silicate molecules, once impregnated and mineralised within the wood, cannot evaporate or be diluted by water, the efficacy of *Wood Bliss High-C* is unlimited over time.

Additional note on application: this should ideally be carried out using a roller, applying the product quickly, evenly and uniformly. Silicates react strongly with carbon dioxide (CO₂) in the air, and *Wood Bliss High-C* begins to harden rapidly. Consequently, do not go over an area that has already been treated with the roller. Avoid applying the product too thickly. The product cannot be sprayed on.

It should be noted that certain types of wood are difficult to impregnate. In such cases, it is recommended not to sand the wood too finely. Furthermore, pre-moistening the wood before applying *Wood Bliss® 4050* has been found to be an effective method for opening the wood's pores. You may also contact Galtane's technical department for advice on using the product 'Nenis 14' to facilitate the opening of the wood's pores.

Note on the finish: after 2 to 4 weeks, a whitish film of varying intensity may appear. This is free silicate. This phenomenon is normal and will result in slight chalking.

Maintenance: No maintenance is therefore required, except in the event of cracks or splits forming: these are unprotected and must be treated. For surfaces frequently exposed to friction and/or other forms of wear and tear, any damage should be treated by applying a new coat of *Wood Bliss High-C*.

Outdoors: *Wood Bliss High-C* can be applied to timber outdoors, provided it is sheltered from the elements. For other situations, Galtane will provide a personalised technical advice.

3-in-1: *Wood Bliss* and *Wood Bliss High-C* offer the advantage of protection against fire, wood-decaying fungi and wood-boring insects. Three benefits in a single product.

Other finishes: No other product may be applied over *Wood Bliss High-C* in order to comply with standard EN 13501:1.

Biophilia: With *Wood Bliss High-C* – which is not a toxic treatment for timber and timber structures – you preserve the 'wood' feel after treatment. The timber will not take on the appearance of a synthetic surface. With *Wood Bliss High-C*, the concept of 'biophilia' is therefore preserved.

■ In the presence of wood-destroying fungi (dry rot, *Serpula lacrymans*):

Two applications of *Wood Bliss® ref. 4050*; depending on the extent and depth of the mould, then treat with *Wood Bliss® 'High-C' ref. 4055*. Through a mechanical crystallisation process, *Wood Bliss®* mineralises (hardens) the mould, takes its place and reinforces the wood. A slight whitish layer may appear. This is a sign that the product is working (crystallisation). For timber in plain view, remove the crystalline layer.

■ In the presence of longhorn beetles:

Locate the infested areas (using a stethoscope if necessary). Drill holes 2 to 3 mm in diameter, spaced approximately 10 to 15 cm apart, to half the depth of the wood. Inject *Wood Bliss ref. 4050* twice and, in the event of a recurrence, finish with two injections of *Wood Bliss® 'high-C'*. It is essential that the product reaches the infested areas. Repeat the procedure until the infestation has been eradicated. Holes drilled into the underside of the surfaces to be treated should be sealed with wax or an equivalent product. If the infestation is widespread, it is advisable to remove the old protective coats by sanding and to coat the wood with two coats of *Wood Bliss® ref. 4050* to prevent any further outbreaks!

■ To reduce toxic emissions from previous treatments:

Two applications of Wood Bliss® 'high-C' 24 hours apart

(In accordance with the University of Hamburg)

- Precautions:** Wear gloves and protect your eyes. Protect metal and glass surfaces (windows, spectacles, etc.), natural stone, aluminium, lacquered surfaces, floors, etc. In the event of splashes, rinse immediately and thoroughly with water.
- Due to its high alkalinity, a more or less significant change in colour may be observed (oak, chestnut, etc.). Carry out preliminary tests!
- For a colourless treatment (parquet flooring, furniture), see HM16 ref. 4010.
- Drying:** At least 12 hours between coats.
- Complete mineralisation within the wood will take 6 weeks. After this time, Wood Bliss will no longer be water-soluble.
- Coverage:** 10 m²/l per coat, depending on the absorbency of the surface. The final coverage will be assessed on site.
- Cleaning tools:** Thoroughly with water, ideally with a vinegar solution
- Precautions and storage:** *Avoid contact with skin and eyes (alkaline product).* In the event of contact with skin or eyes, rinse thoroughly with water.
- Store in a cool place, away from frost and light. Be aware of any potential allergies. Dispose of residues at a waste collection centre. Keep paints out of the reach of children.
- Protect metal and glass surfaces (windows, spectacles, etc.), natural stone, aluminium, lacquered surfaces, floors, etc. In the event of splashes, rinse immediately and thoroughly with water. However, there is a way to remove these marks from glass by cleaning it with a damp sponge and clay stone. Repeat if necessary.

This document has been revised to take into account the requirements of Directive (EU) 2024/825 'EmpCo'.

The **products** we recommend for specific tasks must be tested under the user's own responsibility. The final result depends on unforeseeable factors. Our advice, based on extensive experience, is provided for information purposes only. We accept no liability for it, and it shall not form the basis for any legal action. We have no influence over the user's actual practical application of the product and cannot under any circumstances be regarded as the contractor for the work to be carried out. Depending on the type of substrate prior to application, the user is advised to check that the product is suitable for the intended use. Our liability is limited to the value of the products supplied or used. This technical data sheet is provided for guidance only.