Gezondheidsraad | Health Council

Commentaar op conceptadvies Houtstof

Comments on draft report Wooddust

Inhoud / Contents

Dit document bevat de letterlijke weergave van de commentaren (deels Engelstalig) van:

- Koninklijke Metaalunie en Vereniging FME, *Feature Manipulation Engine*
- Vereniging Afvalbedrijven
- Nederlandse Emballage- en Palletindustrie Vereniging (EPV)

This document contains the comments (one in Dutch) by:

- Koninklijke Metaalunie and FME, *Feature Manipulation Engine*
- Dutch Waste Management Association
- Dutch Packaging & Pallet Industry Association

caesar consult
RISICOBEOORDELING VAN CHEMISCHE STOFFEN
CHEMICAL SUBSTANCES RISK ASSESSMENT

459/26-515-11

Koninklijke Metaalunie & FME
p.a. Einsteinbaan 1
2718 RP Nieuwegein

Date	27 February 2026
from:	dr. J.G.M. van Rooij (PhD)
Your reference:	Your email message dated 13 Januari 2026
Contact person:	Mr. K. Halm (FME)
Our reference:	project number 2026.001 (proposal dated 2025-12-19)
Concerns:	Review draft report of Health Council (DECOS): Wood dust (24 November 2025)

Dear Mr. K. Halm,

Thank you for sending us the draft report of the Dutch Expert Committee on Occupational Safety (DECOS) of the Health Council, entitled: *Wood dust – Evaluation of health hazards as basis for an occupational exposure limit* (24 November 2025).

You are asking me to review this draft report on Wood dust, based on my knowledge of toxicology and occupational hygiene.

Please find the results of my review in the attachment. If you have any questions or comments, please contact me by phone or email.

Yours sincerely,

dr. J.G.M. van Rooij (PhD)
toxicologist / occupational hygienist

Review of draft report of the Health Council of the Netherlands:

Wood dust – Evaluation of health hazards as basis for an occupational exposure limit
Dutch Expert Committee on Occupational Safety (DECOS), The Hague, public draft, version date 24 November 2025

Place, Date:	Nijmegen The Netherlands, February 27, 2026.
By:	dr. J.G.M. van Rooij (PhD), toxicologist / occupational hygienist at Caesar Consult
On behalf of:	Koninklijke Metaalunie en FME

1. Introduction

In November 2025, the *Dutch Expert Committee on Occupational Safety* (DECOS) of the Health Council in collaboration with the *Nordic Expert Group for Criteria Documentation of Health Risks from Chemicals* (NEG), published a draft advisory rapport for a new occupational exposure limit value for wood dust (Public draft, version date 24 November 2025) [1].

The Health Council invites interested parties or individuals to comment. These comments will be considered when drafting the final advisory report.

The proposed workplace limit value for wood dust (both hardwood and softwood) aims to reduce the risk of nasal cancer. DECOS recommends the following occupational exposure limits for wood dust (8-hour TWA, inhalable dust):

- **0.1 mg/m³**, corresponding to the target risk level or '*streefrisiconiveau*'; 4 x 10^{-5} for 40 years of exposure,
- **0.8 mg/m³**, corresponding to a risk level of 4 x 10^{-4} for 40 years of exposure, and
- **2.9 mg/m³**, corresponding to the prohibition risk level or '*verbodsrisiconiveau*'; 4 x 10^{-3} for 40 years of exposure.

It is noted that in 2000, the Health Council of the Netherlands concluded that the target risk level for hardwood dust corresponds to 0.06 mg/m³ (Health Council 2000/08OSH).

The current legal workplace exposure limit for wood dust in The Netherlands pertains to hardwood dust (wood dust from angiosperms = hardwood[2]) and is 2 mg/m³.

The use of wood and the formation of wood dust are also of great importance to the metal sector and its employees. The question is whether the available knowledge about the hazards of these substances justifies the proposed workplace exposure limits.

The Koninklijke Metaalunie en FME have commissioned Dr. Joost van Rooij, toxicologist/occupational hygienist at Caesar Consult Nijmegen, to critically the draft recommendation on Wood Dust.

[1] Health Council of the Netherlands: *Wood dust - Evaluation of health hazards as basis for an occupational exposure limit*. Dutch Expert Committee on Occupational Safety (DECOS). The Hague, the Netherlands, public draft, version date 24 November 2025.

[2] Examples of hardwoods are: birch, beech, oak, alder, ash, maple, aspen, hornbeam, elm, chestnut, cherry, lime, walnut, plane tree, poplar, walnut, willow and the tropical hardwoods balsa, ebony, iroko, kauriden, mahogany, mansonia, meranti, rosewood and teak (SER advice, 26 July 2007).

2. Aim

Critical assessment of the findings and conclusions of the DECOS committee of the Health Council of the Netherlands in their draft report entitled: Wood dust - Evaluation of health hazards as basis for an occupational exposure limit. Dutch Expert Committee on Occupational Safety (DECOS). The Hague, The Netherlands, public draft, version date 24 November 2025.

3. Approach

In this review special attention is given to the Committees' working methods, the inventory and processing of the current and available toxicological and epidemiological data, the selection of the critical effect(s) and the key-study/studies, the quality of the selected key-study/studies, and the interpretation of the selected research data.
In this review the instructions of the Health Council for submitting comments were followed.[3]

4. Expertise

The review was conducted by dr. J.G.M. van Rooij (PhD). He is a EUROTOX registered toxicologist and senior occupational hygienist at Caesar Consult, The Netherlands.

5. Results of the review

Studying the Health Council report shows that DECOS make a number of assumptions, choices and conclusions that have a major influence on the evaluation of the possible health effects and the recommended occupational limit values for wood dust, but which are insufficiently substantiated with scientific data.

The results of the review in broad terms is presented in § 5.1. Detailed comments and suggestions are presented in § 5.2.

5.1 Main findings (review in broad terms)

Estimation of three risk levels
The DECOS advises three risk levels for exposure to wood dust. The Ministry of Social Affairs and Employment (SZW) in the Netherlands has determined two risk levels for occupational exposure to carcinogenic substances: (i) the *target risk level* and (ii) the *prohibition risk level*. Reporting an extra risk level (4×10^{-4}, for 40 years of occupational exposure) leadto unnecessary confusion.

No more distinction between hardwood and softwood dust
DECOS acknowledges that “wood dust” is not a single agent but includes different types of wood species, differing in their physico-chemical properties, dust of both fresh and dry woods, and dust from untreated and chemically treated woods. This increases the uncertainty related to the representativeness of an OEL proposed based on specific data. Also, the particle size distribution of the dust may vary depending on the type of wood and woodworking methods applied (see page 111, line 1 -7). Nevertheless, DECOS derives a generic OEL, without distinguishing between hardwood and softwood dust.
According to IARC, there is strong evidence for an association between sinonasal cancer and exposure to hardwood dusts, based on the results of the few studies that specifically assessed exposure to

[3] Health Council of the Netherlands: Instructions for submitting comment on the draft advisory report Wood dust (The Hague NL, November 26, 2025)

hardwoods and on the results of case series that identified specific tree species. Among the few case-control studies that assessed the relationship with softwoods, there was a consistent excess risk, but the magnitude of the excess was substantially smaller in comparison to hard-woods, and the association was primarily with squamous cell carcinoma (see paragraph 12. Previous evaluations by national and international bodies). DECOS is urged to make a clear distinction between hardwood and softwood in its evaluation of possible health effects from wood dust and to derive a limit value for both hardwood and softwood dust

No distinction between untreated and treated wood
DECOS acknowledges that so-called *treated wood* (such as MDF, impregnated wood, thermally treated wood) differ in their physico-chemical properties, the particle-size of the generated dust (finer particles), and exposure levels. Sawing of MDF produces substantial higher concentrations of dust than sawing in softwood (**page 4, line 31-33; page 24, line 36-38**). Thermally modified, thermo-treated wood creates a larger amount of fine dust compared to similar but untreated wood (**page 24, line 26-28**). DECOS is urged to make a clear distinction between untreated and treated wood in its evaluation of possible health effects from wood dust and to consider the derivation of a separate limit value for treated wood (and maybe an exclusion of impregnated wood).

No explanation of the uncertainties
Although DECOS acknowledges that "wood dust" is not a single agent but includes different types of wood species, differing in their physico-chemical properties and health effects, dust of both fresh and dry woods, and dust from untreated and chemically treated woods, DECOS does not address the uncertainties that arise from proposing an OEL based on specific data. An indication of the margin of uncertainty of the proposed risk levels is missing.

Threshold for carcinogenic effects?
DECOS considers wood dust to be a carcinogenic substance without a safe threshold. That is not correct. A primary genotoxic mechanism implies that the substance, in this case wood dust, directly interacts with DNA for example through a covalent bond or adduct formation (such as alkylating agents, epoxides, some PAH-metabolites) . That is not the case. Contrary to what DECOs claims, the production of Reactive Oxygen Species (ROS) and the resulting DNA damage is an indirect, secondary genotoxic process.

Critical effect of exposure to wood dust: cancer or irritation of respiratory tract?
DECOS considers cancer (nasal adenocarcinoma) as the critical health effect of wood dust. Also ACGIH identified wood dust as a confirmed human carcinogen, at least for certain wood types[4] . But ACGIH did not consider the tumour-inducing property of wood dust to be the critical health effect. A TLV was deduced for the inhalable fraction of wood dust in order to protect workers from the development of upper and lower respiratory tract irritation and respiratory function decreases. This is a fundamentally different view of the dangers of wood dust than that of DECOS.

DECOS is kindly requested to address these issues in the final version of her advisory report and to make a clear distinction in its evaluation of possible health effects from wood dust between hardwood, softwood, and treated wood The derivation of the recommended limit values should be based on a threshold approach instead of a risk-based approach.

[4] According to ACGIH (2020), Oak and Beech are confirmed human carcinogens; Birch, Mahogany, Teak and Walnut are suspected human carcinogens; and all other wood dusts are not classifiable as human carcinogens

5.2 Detailed comments and suggestions

Executive Summary

Page 4 – 6:
DECOS is kindly requested to adjust the *Executive summary* based on the changes and corrections made in the main body of the report (see below).

Samenvatting

Page 7 – 8:
DECOS is kindly requested to adjust the *Samenvatting* based on the changes and corrections made in the main body of the report (see below).

Page 7, line 6-7
DECOS states: "*….hebben de gezondheidsrisico's van beroepsmatige blootstelling aan houtstof beoordeeld.*"

Correcter is: " *… hebben de schadelijke gezondheidseffecten van beroepsmatige blootstelling aan houtstof beoordeeld.*"

Page 7, line 15
DECOS states: *"Het advies is opgesteld op verzoek van het ministerie van Sociale Zaken en Werkgelegenheid (SZW) en de autoriteiten van Denemarken, Finland, Noorwegen en Zweden. Meer informatie over de adviesvraag en de commissies staat op www.gezondheidsraad.nl en www.nordicexpertgroup.org".*

I did not find any information about a formal request of the Minister of SZW for an advise on wood dust. Not on the website of the Gezondheidsraad (www.gezondheidsraad.nl) and not on the web-site of the Ministry of SZW.

DECOS is kindly requested to include the letter from the Minister of SZW with the formal request for advice on Wood dust in the appendix of the report. And if there's no formal request from SZW, DECOS is kindly requested to explain why DECOS decided to re-evaluate the health effects and limit value for wood dust.

Preface

Page 10, line 28-29
DECOS states: "*The draft evaluation on Wood dust was prepared and first reviewed by the NEG, and thereafter by the DECOS.*" '

This sentence suggests that the draft evaluation on Wood dust is prepared by NEG and that DECOS played a role as a reviewer afterwards. It's probably not meant that way.

DECOS is kindly requested to clarify her role in the development of the draft advisory report on wood dust.

4. Measurements and analyses of workplace exposure

Page 28, line 13-14

DECOS states: "*For this document, the conservative conversion factor of 2 was chosen.*'

The consequence of choosing a '*conservative conversion factor of 2'* (for converting 'total dust' concentrations to inhalable dust concentrations) is maybe not clear for the average reader.
For the sake of transparency it would be good if DECOS clarifies that the choice of a relative low conversion factor results in a underestimation of the actual exposure and ultimately in a relative low estimate of the exposure level that induces adverse effects. In other words: assuming a conservative conversion factor results in an overestimation of the health risks (increased risk of cancer) of wood dust and that is undesirable.

DECOS is kindly requested to choose a more realistic conversion factor for the exposure assessment when determining the concentration of wood dust in the working atmosphere at which adverse health effects are expected.

8.3 Genotoxicity and cancer

Page 45, line 28-30
DECOS states: "*Several mechanisms have been proposed to contribute to the detected effects, which may be due to primary (ROS production and DNA damage) or secondary genotoxicity (inflammation).*"

This statement suggests that '*ROS production and DNA damage'* is considered a primary genotoxic mechanism. That is not correct. A primary genotoxic mechanism implies that the substance, in this case wood dust, directly interacts with DNA for example through a covalent bond or adduct formation (such as alkylating agents, epoxides, some PAH-metabolites) . That is not the case. The production of Reactive Oxygen Species (ROS) and the resulting DNA damage is an indirect, secondary genotoxic process.

Due to the (incorrect) assertion that ROS production and DNA damage are a primary genotoxic process, DECOS wrongly considers wood dust a stochastic genotoxic carcinogen, i.e., a substance for which no safe threshold value can be derived. Therefore, DECOS follows the so-called risk approach when deriving the threshold value. This is incorrect. Wood dust should be considered a substance that has a safe threshold. A hazard evaluation of such a substance starts with deriving a no-effect level.

Furthermore, it is important to recognize that ROS formation and DNA damage has only been observed in *in vitro* tests (which have serious limitations) and not in *in vivo* tests (see also par. 9.3 of the DECOS report).

If direct primary genotoxicity occurs, it can only be caused by chemical components (natural or added) in wood dust. If these chemical components in certain types of wood indeed play an important role in the development of cancer, DECOS should instead derive a threshold value for these chemical component(s).

It is emphasized that the requirements in The Netherlands for working with carcinogenic substances without a threshold value are much stricter and more drastic than for carcinogenic substances with a safe threshold value.

DECOS is kindly but urgently requested to reconsider the statement that ROS formation and DNA damage is a primary genotoxic effect, and to focus on deriving a limit value for wood dust based on a no-effect-level (instead of following the so-called risk-based approach).

11.5 Carcinogenicity

Page 101, line 12-13
DECOS states: "*Epidemiological studies provide consistent evidence on an association between cumulative wood dust exposure and nasal adenocarcinoma, although studies addressing the exposure-response relations are scarce.".*

Page 102, line 15-20
DECOS states further: "*Regarding the exposure-response evidence for wood dust and carcinogenicity, two case-control studies (Pesch et al. 2008, Siew, 2017) allowed an evaluation of the exposure-response. However, the study by Pesch et al. (2008), was small with only six cases in the reference category. In addition, the reference category in Pesch et al. (2008) had considerable wood dust exposure*."

Page 111, line 9-11
DECOS states: "*Only two studies (Pesch et al. (2008) and Siew et al. (2017)) provide quantitative data on the relationship of cancer in humans and exposure to wood dust*."

Many epidemiological studies have been conducted on the possible carcinogenic effects of wood dust. RIVM (2021) has summarized all relevant epidemiological studies on cancer, such as cohort studies (see table 19 in the RIVM report), case-control studies (see table 20), meta-analyses (table 21), and cross-sectional studies (see Appendix 3 of RIVM report). It is unclear why DECOS states that only 2 studies allowed a evaluation of the exposure response (Pesch et al., 2008 and Siew, 2017) There are more studies that provide quantitative data for the evaluation of the exposure-response relationship.

In addition, the reasons for dismissing the Pesch et al. study (2008) do not seem very valid. It is a very interesting study because it is conducted in the wood industry in Germany (more similar with the situation in the Netherlands) and it makes a distinction between the types of wood (hardwood, softwood, particle board, medium-density fibre board) and by wood additives (preservatives, varnishes, pigment stains, formaldehyde) . Pesch et al. (2008) report an 10-fold elevated adenocarcinoma risk for exposure to inhalable wood dust between 3.5 and 5 mg/m^3, and a 48-fold higher risk when exposed to concentrations to inhalable wood dust above 5 mg/m^3. In addition their results show that hardwood dust results in a 10-fold higher risk than softwood dust. The researchers conclude that the rareness of the disease (and therefore the low number of cases in the reference category!) limits the precision of the risk estimates and the evaluation of the shape of the dose-response relation in the low-dose range. But that is not yet a reason, as DECOS in fact does, to disqualify and set aside the entire study. In fact, DECOS should be particularly aware that rareness of the disease limits extrapolation in the lower exposure range and makes DECOS' assumption (see appendix 3) about the shape of the dose response relationship in the low-dose range very uncertain.

It is noted that the study of Siew 2017, that is selected by DECOS as key-study for the derivation of the exposure limit value has, also serious limitations, e.g. the work histories are derived from census data, the study population consists of males only and the exposure estimates are JEM-based (not addressing the exposure variability within occupations). Other limitations of the study of Siew 2017 are that wood dust exposure in Nordic countries is softwood-dominant and that the fraction of hardwood dust exposure and the fraction of exposure to impregnated and other treated woods among the studied population is unknown.

The selection of a key study is an important, perhaps the most important, step in deriving a threshold value. DECOS is kindly requested to substantiate more clearly and better why the study by Siew (2017) was selected as key-study. DECOS is also kindly requested to additionally derive risk values based on the study

of Pesch et al. (2008) among German wood work workers. It will give insight in both the distribution and uncertainty when deriving risk values from epidemiological data.

13.1.1 Genotoxicity and cancer

Page 107, line 10-11
DECOS states: "*The in vitro and in vivo data as well as human studies report both primary and secondary genotoxicity of wood dusts and dust extracts*."

This statement is not correct. A primary genotoxic mechanism implies that the substance, in this case wood dust, directly interacts with DNA for example through a covalent bond or adduct formation (such as alkylating agents, epoxides, some PAH-metabolites) . That is not the case (see also the comment above on the statement on page 45, line 28-30)

DECOS is kindly requested to correct this statement, e.g.: *"The in vitro and in vivo data as well as human studies report secondary genotoxicity of wood dusts and dust extracts."*

Page 107, line 29-33
DECOS states: "*Although, based on the mechanistic data, inflammation related mechanisms are likely to contribute to the carcinogenicity of wood dust, a threshold or break-point in the exposure-response curve cannot be identified from the available data. The cancer risk seemingly starts to increase already from low levels of cumulative exposure*."

The existence or non-existence of a threshold or break-point in de exposure-response curve is a key-element, and in my view a key-issue, in this evaluation by DECOS and NEG. Just stating that a threshold or break-point can not be identified is not enough.

DECOS is kindly requested to provide the exposure-response curves of the most relevant epidemiological studies (at least Siew, 2017 and Pesch et al, 2008). This makes this key-element in the evaluation more transparent.

13.3 Scientific basis for an occupational exposure limit

Page 110, line 17-21
DECOS states: "*Epidemiological studies show a strong association between occupational exposure to wood dust and nasal adenocarcinoma. Although based on the mechanistic data, inflammation related mechanisms are likely to contribute to the carcinogenicity of wood dust, a threshold or break-point in the exposure-response curve cannot be identified from the available data*."

The existence or non-existence of a threshold or break-point in de exposure-response curve is a key-element, and in my view a key-issue, in this evaluation by DECOS and NEG. Just stating that a threshold or break-point can not be identified is not enough.

DECOS is kindly requested to provide the exposure-response relationships as reported in the most relevant epidemiological studies (at least Siew, 2017 and Pesch et al. 2008). This will make this key-element in the evaluation more transparent.

Page 110, line 21 - 24

DECOS states: *"There is evidence to support primary genotoxicity, mediated by ROS production, and direct genotoxicity cannot be excluded. This means that carcinogenicity should be considered as the critical effect of wood dust exposure."*

This statement is not correct. A primary genotoxic mechanism implies that the substance, in this case wood dust, directly interacts with DNA for example through a covalent bond or adduct formation (such as alkylating agents, epoxides, some PAH-metabolites). That is not the case (see also the comment above on the statement on page 45, line 28-30).

The conclusion of DECOS that carcinogenicity should be considered as the critical effect is therefore based on an incorrect assumption. As concluded by for example ACGIH (2020), but also by other organizations , the irritation of the airways is considered as the critical health effect of wood dust

DECOS is kindly but urgently requested to reconsider the statement that ROS formation and DNA damage is a primary genotoxic effect, and to focus on deriving a limit value for wood dust based on a no-effect-level (instead of following the so-called risk-based approach). As concluded by for example ACGIH (2020), but also by other organizations, the irritation of the airways is considered as the critical health effect of wood dust.

Page 110, line 24 - 27
DECOS states: "*However, wood dust is also associated with non-cancer health effects such as nasal and respiratory tract irritation and increased asthma risk at exposure levels in the same order of magnitude as the target cancer risk levels in the European OEL setting context".*

Nasal and respiratory tract irritation and increased asthma risk occurs at exposure levels in the range of 1 – 2 mg/m^3. The *target cancer risk level* that has been derived by DECOS, following the risk-based approach assuming no-safe-threshold, is equivalent with **0.1 mg/m^3** ('streefrisiconiveau'; 4 x 10^{-5} for 40 years of exposure). That is not the same order of magnitude, but about 10 times lower.

DECOS is kindly requested to correct and/or clarify this statement.

Page 110, line 28- 29
DECOS states: "*Therefore, it is important to consider also these non-cancer health effects in the OEL setting, although the exposure-response data are scant."*

This is an understatement. For wood dust carcinogenicity, carcinogenicity is understood to arise from chronic irritation and inflammation of the sinonasal epithelium with immune-mediated ROS formation contributing to (secondary!) oxidative DNA damage. Without chronic irritation and inflammation there will be no development of nasal adenocarcinoma. *Assessing the no-effect-level of the irritation/inflammation of the airways by wood dust, should be the basis for deriving a safe limit value that not only protects against irritation, but also against nasal adenocarcinoma .*

DECOS is kindly requested to rephrase this statement and to focus on deriving a limit value for wood dust based on a no-effect-level approach, instead of following the so-called risk-based approach.

Page 111, line 1-7
DECOS states: "*A further challenge that needs to be acknowledged is that "wood dust" is not a single agent but includes different types of wood species, differing in their physico-chemical properties, dust of both fresh and dry woods, and dust from untreated and chemically treated woods. This increases the uncertainty related to the representativeness of an OEL proposed based on specific data. Also, the 5 particle size distribution of the dust may vary depending on the type of wood and woodworking methods applied*."

DECOS does not address the uncertainties that arise from proposing an OEL based on specific data (only data from Siew, 2017 are used).

If DECOS decides not to follow the recommended and more appropriate no-effect-level approach, and sticks to her risk-based approach, then DECOS is kindly requested to indicate the margin of uncertainty in its proposed risk levels, not only because of the variety of 'wood dust', but also because of the uncertainties that arise because of not addressing the variability in exposure (exposure estimates are JEM based), the unknow fraction of hard wood dust, the unknown fraction impregnated wood, etcetera.

13.3.1 Calculation of excess cancer risk

Page 112 – 113, line 40 - 6
DECOS states: "*The committees estimate that the concentration of wood dust in air, which corresponds to an excess cancer risks of:*

- *4 additional cases of nasal adenocarcinoma per 100 000 workers (4×10^{-5}), for 40 years of occupational exposure, equal to 0.1 mg/m^3 (target risk level or low risk level).*
- *4 additional cases of nasal adenocarcinoma per 10 000 workers (4×10^{-4}), for 40 years of occupational exposure, equal to 0.8 mg/m^3.*
- *4 additional cases of nasal adenocarcinoma per 1 000 workers (4×10^{-3}), for 40 years of occupational exposure, equal to 2.9 mg/m3 (prohibition risk level or high risk level)."*

The Ministry of Social Affairs and Employment (SZW) in the Netherlands has determined two risk levels for occupational exposure to carcinogenic substances: (i) the *target risk level* and (ii) the *prohibition risk level*.

DECOS is kindly requested to only report the two risk levels for occupational exposure to carcinogenic substances as determined by Ministry of SZW: the *target risk level* and the *prohibition risk level* . Reporting an extra risk level (4×10^{-4}, for 40 years of occupational exposure) leads to unnecessary confusion.

Page 113, between line 17 & 18
Paragraph *13.3.1 Calculation of excess cancer risk* lacks an explanation of the uncertainties in deriving the targeted and prohibit risk levels for wood dust.

DECOS is kindly requested to address the uncertainties in deriving the targeted and prohibited risk levels for wood dust, and to give an indication of the margin of uncertainty of the proposed risk levels.

Overall conclusion
DECOS is strongly advised to follow the so called 'threshold approach' instead of the 'risk-based approach' when deriving a occupational limit values for wood dust and to make a clear distinction between dust from hardwood, softwood, and treated wood.

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Dutch Waste Management Association
Partner in the circular economy

Memo

459/26-515-12

Subject: Response to the draft advisory report on wood dust (public review)
Date: 25 February 2026
To: Health Council of the Netherlands, Dutch Expert Committee on Occupational Safety (DECOS)
From: Dutch Waste Management Association (Vereniging Afvalbedrijven)

Introduction

The Dutch Waste Management Association (DWMA) has taken note with interest of the draft advisory report on wood dust (version dated 24 November 2025).

The DWMA supports the importance of ensuring a healthy and safe working environment and of limiting occupational exposure to wood dust. Our comments are intended as requests for clarification regarding the scientific substantiation as presented in the draft advisory report and the interpretation thereof in relation to actual exposure situations.

Within the waste and recycling sector, wood is processed through activities such as crushing, size reduction and shredding of wood streams. These streams largely consist of mixed wood fractions, which in practice include a substantial proportion of softwood (such as pine and spruce).

Epidemiological evidence and wood type

Reference: pages 90, 103 and 104

The report states that wood dust has been classified as carcinogenic (IARC Group 1). It further indicates that strong evidence for sinonasal cancer has in particular been established in relation to hardwood exposure.

In addition, some studies suggest that the excess risk is likely more strongly related to hardwood than to softwood.

At the same time, the report notes that in the majority of studies no explicit specification of wood type was provided and that exposure is often described as mixed wood dust.

Given that within our sector mixed wood streams are commonly processed, including a considerable share of softwood, we request the Committee to clarify explicitly in the final advisory report:

- To what extent the underlying epidemiological data allow differentiation by wood type.
- How mixed wood dust exposure is scientifically weighed in the risk assessment.

Such clarification would contribute to a careful interpretation of the scientific basis of the risk assessment.

Onderwijsboulevard 218 • P.O. Box 2184, NL-5202 CD 's-Hertogenbosch • **T** +31 (0)73 627 94 44 • info@dwma.eu
www.wastematters.eu/www.verenigingafvalbedrijven.nl • **KvK** Brabant 27260272 • **BTW nr** NL812586177B01 • **IBAN** NL19RABO0114813957

Measurement methodology and practical differentiation

Reference: pages 31 and 32

In the chapter concerning analysis of dust samples, it is explicitly stated that there is no standard analytical method to routinely distinguish between hardwood and softwood dust.

As exposure in practice is generally measured gravimetrically as total inhalable wood dust, differentiation by wood type in routine occupational measurements is not, or only to a limited extent, possible.

We therefore request the Committee to clarify how this limitation in measurement methodology relates to the epidemiological differentiation observed in certain studies, and how mixed wood dust exposure should be interpreted in this context.

Recent exposure levels and risk characterisation

Reference: pages 37 - 40 (table 9) and 104

The report provides an overview of recent European exposure measurements, indicating that average inhalable exposure levels in many cases are around or below 1 mg/m³.

SCOEL previously indicated that exposure levels below 0.5 mg/m³ (total dust) may have been below the levels at which sinonasal cancer was observed.

We request the Committee to further clarify in the final advisory report:

- To what extent current exposure levels have been taken into account in the risk modelling.
- What uncertainties exist in the extrapolation to lower exposure concentrations.

Available data and measurement methodology

The DWMA supports the principle that exposure to wood dust should be reduced as far as reasonably achievable. At the same time, the report indicates that both differentiation by wood type and precise characterisation of exposure are subject to limitations in measurement methodology and available data.

We therefore consider it important that the final advisory report clearly explains how the proposed target risk level relates to:

- Measurement methodology, analytical methods and detection limits (for example 0.1 mg/m³ for IOM samplers at a sampled volume of 1 m³).
- The variability in currently measured exposure levels.

A transparent discussion of these aspects may contribute to a careful and stepwise improvement in exposure reduction, in line with the scientific substantiation.

In conclusion

The DWMA supports the scientific approach of the draft advisory report. We respectfully request the Committee to explicitly address in the final advisory report:

- Specification of wood type in the epidemiological evidence.
- Limitations in measurement methodology with respect to differentiation of wood dust.
- The relationship between historical and current exposure levels.
- The interpretation of the target risk level in relation to measurement methodology.

Additional consideration

If the risk-based approach described in the draft advisory report is, at a later stage, translated into regulatory standards, we consider it important that any potential limit values take into account sector-specific exposure characteristics, including mixed wood streams and the proportion of softwood within certain sectors, such as the waste and recycling sector.

We note that the report itself identifies differences in epidemiological evidence and limitations in measurement differentiation. A careful policy translation of the scientific advice may therefore require further clarification of sectoral exposure profiles.

459/26-515-13

Nederlandse Emballage- en
Palletindustrie Vereniging (EPV)
Hollandseweg 7-G
6706 KN Wageningen
Tel: 0317 228 049
E-mail: Info@EPV.nl
KVK-nr. 40397277

Attn: Dr R.H. Mennen, scientific secretary
Dutch Expert Committee on Occupational Safety (DECOS)
De Gezondheidsraad - The Health Council of The Netherlands
Postbus 16052
2500 BB Den Haag

Betreft : **Openbare consultatieronde over houtstof**
Datum : 27 februari 2026

Geachte heer/mevrouw Mennen,

Namens de Nederlandse Emballage- en Palletindustrie Vereniging (EPV) richt ik mij tot u naar aanleiding van het op 26 november 2025 gepubliceerde conceptadvies over houtstof onder titel ‘Draft advisory report Wood dust’.

De EPV onderschrijft het belang van een hoog beschermingsniveau voor werknemers die met houtstof werken. Bescherming van gezondheid is een kernverantwoordelijkheid van werkgevers én sectororganisaties.

Tegelijkertijd vraagt de EPV aandacht voor een tweede realiteit: naast de epidemiologische werkelijkheid bestaat er een technische, economische en maatschappelijke werkelijkheid. Onderzoek en normstelling dient alle drie in samenhang te wegen.

Hout is een eeuwig hernieuwbare, klimaat neutrale biobased grondstof die essentieel is voor:

- CO_2-opslag en klimaatdoelstellingen
- Circulaire economie
- Substitutie van fossiele materialen
- Verduurzaming van logistieke ketens

Een normstelling die de bewerking van hout onevenredig bemoeilijkt, heeft gevolgen die verder reiken dan arbeidsomstandigheden alleen.

De EPV bepleit daarom een realistische, proportionele en gefaseerde benadering, waarin gezondheidsbescherming en duurzaamheidsambities in balans worden gebracht. Dit naast onze inhoudelijke reflectie op het gezondheidskundig kader.

1. Reflectie op het gezondheidskundig kader

De EPV neemt kennis van het gehanteerde uitgangspunt dat houtstof als genotoxisch carcinogeen zonder veilige drempel wordt beschouwd (non-threshold benadering).

Wij plaatsen daarbij de volgende kanttekeningen:

Extrapolatie naar lage blootstellingen

De epidemiologische basis van het risico is grotendeels ontleend aan historische cohorten met substantieel hogere blootstellingen dan in de huidige Nederlandse praktijk.

De lineaire extrapolatie naar lage concentraties (sub-mg/m³) brengt onvermijdelijk onzekerheden met zich mee. Naarmate de norm lager wordt, neemt de onzekerheid van de risicoschatting relatief toe. De EPV hecht waarde aan het benoemen van deze onzekerheid en acht het van belang dat deze onzekerheid expliciet wordt meegewogen in de conclusies die als basis kunnen worden gebruikt voor beleidsvorming.

Hardhout versus zachthout

De emballage- en palletindustrie werkt overwegend met zachthout. Hoewel epidemiologische studies vaak gemengde blootstelling stellen te betreffen, is het historisch risico sterk geassocieerd met specifieke hardhouttoepassingen (bijvoorbeeld in meubel- en timmerindustrie). Eerdere publicaties van het Internationaal Agentschap voor Kankeronderzoek (IARC,1995) tonen deze nuances dan ook en gaan terecht in op het technische verschil van chemische samenstelling en anatomische structuur van houtsoorten.

Een uniforme benadering verdient nadere onderbouwing wanneer:

- blootstellingsniveaus verschillen;
- houtsoorten verschillen;
- productieprocessen verschillen.

Deze benaderingen zijn in de scope van het rapport niet meegenomen, wat wij als een gemis ervaren.

2. Praktijkgegevens uit de sector en realisme in normstelling

De EPV heeft sinds 2008–2010 sectorbrede metingen laten uitvoeren. Deze rapporten tonen dat houtstofvorming zich voornamelijk concentreert bij specifieke machinale bewerkingen, waar middels technische verbeteringen aantoonbare reductie mogelijk is. Echter zijn er blijvende uitdagingen bij het structureel reduceren van zeer lage concentraties omdat technische maatregelen werken, maar grenzen kennen. Verdere verlaging verlangt exponentieel hogere (risico) investeringen. De EPV stelt voor om actuele sectorale meetgegevens te betrekken bij de rapportage, of te adviseren bij verdere normstelling. Bij verdere aanscherping dient inzichtelijk te zijn:

- Wat technisch aantoonbaar haalbaar is binnen reguliere productieomgevingen;
- Wat de investeringskosten zijn;
- Wat de impact is op MKB-bedrijven, die de sector domineren.

Zonder dergelijke impactanalyse ontstaat het risico dat normstelling formeel streng is, maar praktisch niet uitvoerbaar.

De EPV stelt voor om:

Differentiatie naar proces en houtsoort

- Onderzoeken of risicodifferentiatie mogelijk en proportioneel is;
- Procesgerichte benadering (bronmaatregelen per machine/bewerkingsprocedure).

Actualisering van praktijkdata

- Een gezamenlijke sector-brede meetcampagne;
- Evaluatie van moderne afzuig- en filtratietechniek;
- Betrekken van arbeidshygiënische expertise bij implementatievoorstellen.

Integrale impactanalyse

Wij verzoeken om een maatschappelijke kosten-batenanalyse waarin wordt meegenomen:

- Arbeidsgezondheid;
- Bedrijfseconomische impact;
- Klimaat- en circulaire effecten;
- Internationale concurrentiepositie.

Conclusie

De EPV onderschrijft het belang van bescherming tegen houtstofblootstelling.

Tegelijkertijd vragen wij om:

- Expliciete weging van onzekerheden bij lage blootstellingen;
- Actualisering van praktijkgegevens;
- Realistische implementatie en transparantie over de mogelijkheden aldaar;
- Integrale afweging van duurzaamheid en economische effecten.

Hout is een natuurlijke, hernieuwbare grondstof met een sleutelrol in de circulaire economie en klimaat neutrale ketens. De bewerking daarvan moet niet worden geremd door normstelling die onvoldoende aansluit bij de technische en maatschappelijke werkelijkheid.

Met de juiste inzichten, sectorale samenwerking en realistische beleid/overgangsregimes kan gezondheidsbescherming worden versterkt zonder de duurzame transitie te frustreren.

Met vriendelijke groet,

drs. H.T. (Rick) Bollen

Algemeen secretaris

Nederlandse Emballage- en Palletindustrie Vereniging (EPV)
Hollandseweg 7-G, 6706 KN Wageningen
Tel: 0317 228 049 | E-mail: Info@EPV.nl | KVK-nr. 40397277