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ENV.B.3 - Biotechnology, Pesticides and Health

30th meeting of representatives of Members States Competent Authorities for the implementation of Directive 98/8/EC concerning the placing of biocidal products on the market

Outcome of stakeholder consultation on creosote

1. Introduction

1.1. Background

Within the framework of the Review Programme established by Directive 98/8/EC, concerning the placing of biocidal products on the market, a dossier was submitted for the inclusion of creosote for use as a wood preservative into Annex I to that Directive.

During the evaluation of creosote, it appeared that it might not be possible to include it into Annex I. The most recent data as regards human health, demonstrate that a safe use may be able to be identified. However, serious risks were identified for some in-service uses in direct contact with soil or water.

Creosote is nonetheless widely used for the protection of wood for equipment such as railway sleepers, communication poles and fences.

During the 27th and 28th meetings of the Competent Authorities for the implementation of Directive 98/8/EC, it was therefore agreed that an overall risk/benefit analysis of the use of creosote shall be made before taking a final decision on its inclusion or not into Annex I.

For the purpose of this overall risk/benefit analysis, the Commission services decided to consult stakeholders to collect evidence on the consequences of the possible phasing out of creosote and on the availability of less hazardous or non-hazardous alternatives to creosote.

1.2. Issue

Creosote [CAS No. 8001-58-9], as defined in the European Standard EN 12303 (CEN 2000), is a brownish-black oily liquid with a smoky odour. It is a distillation product of coal tar which itself is a by-product of the high-temperature destructive distillation of bituminous coal to form coke.

The distillation process generally produces several oil cuts starting from 80°C to 450°C. Creosote is the intermediate cut, ranging from 200 to 355°C as described in the European Standard EN 13991 (CEN 2003).

Creosote is a complex mixture of hundreds of distinct compounds, including bi- and polycyclic aromatic hydrocarbons, phenols, as well as heterocyclic, oxygen-, sulphur- and nitrogen-containing compounds.

The application of creosote is industrial preventative wood treatment. During decades creosote treated wood has been used in several applications.
Two grades of creosote oils are presently under evaluation. The common one is called Grade B and is intended for treatment of timber wood by pressure impregnation. Grade C excludes the lower boiling fraction allowable in Grade B, and because of the lower volatility a reduction in odour is achieved.
The use of creosote has already been restricted by Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations because of its demonstrated hazardous properties.

Creosoted wooden sleepers are widely used by railway companies, especially in rural areas or in places which are difficult to reach. Also well known are the wooden poles utilized for the distribution of electricity or telecommunication wires. Last but not least, agricultural and industrial fencing is an important market for creosoted wood.

1.3. Consultation

In order to perform an overall risk/benefit analysis of the use of creosote as a wood preservative, the Commission services invited stakeholders to provide sound data or evidence on:

- The practical and economic consequences of the phasing out of creosote.
- The availability of less hazardous or non-hazardous alternatives to creosote or creosote treated wood.
- Advantages and/or disadvantages of the use of these possible alternatives compared to creosote or creosote treated wood.
- Practicability of these possible alternatives, in particular whether they can be used in large industrial and/or commercial scale.
- If alternatives are not yet available, estimate of the time needed to develop and make available sound alternatives to the use of creosote.
- Whether or not alternatives can be used in connection with maintenance of cultural heritage or protected constructions.

The consultation was launched on 30 April 2008 and contributions could be sent by e-mail to a functional mailbox until 30 June 2008.

Contributions were made publicly available via the Commission website

2. Results

2.1. Responses

During the consultation period, the Commission services received 50 answers.

18 of them were posted by industry associations mostly representing wood treatment industries. Other associations included network companies (such as electricity providers, telecommunication…) and fruit growing companies.

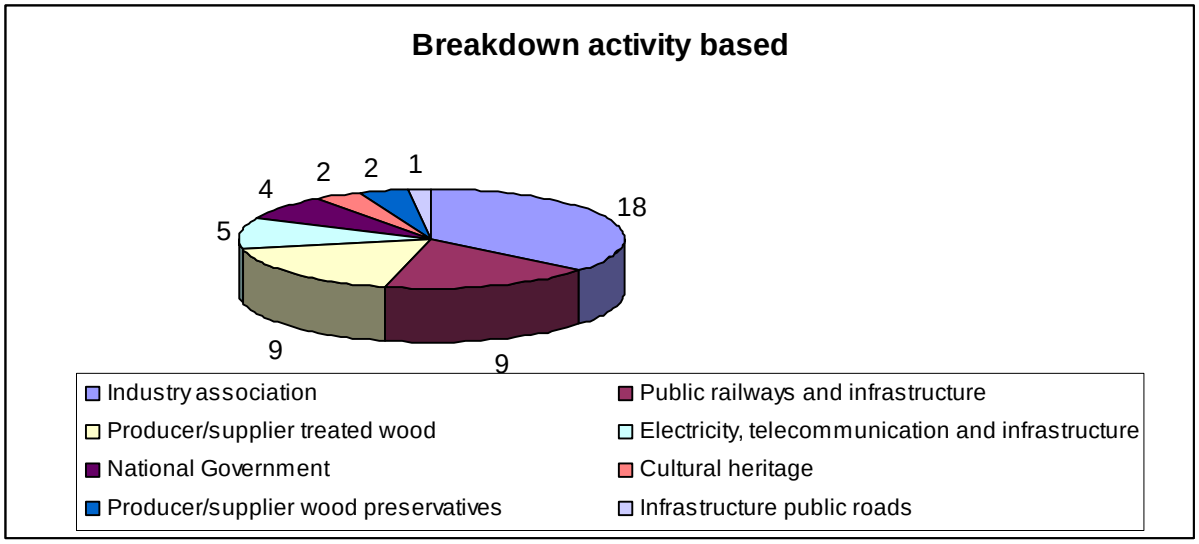
Further contributions were received from individual producers and suppliers of treated wood (9) as well as from groups[1] in charge of railway infrastructures (9, including a railway association)

4 Member State Competent Authorities (NL, FR, EL and HU) transmitted their views on the creosote consultation.

More inputs have been submitted by organisations preserving cultural heritage (2), individual energy companies and telecommunication groups (5).

1 producer of wood preservatives has reacted to the consultation.

The graph below shows a breakdown by activity.



Many of the answers collected were sent by bodies whose activities are based in the UK, DE and NL. A number of industry associations representing companies in the whole of the EU, submitted contributions. One response came from South Africa.

A full list of the respondents is available in the Annex.

[1] Private and public companies

2.2. Analysis

As mentioned above, six key questions were put forward for further reflection.

2.2.1. The practical and economic consequences of the phasing out of creosote

Three respondents did not explicitly address the possible practical or economic consequences of the phasing out of creosote. Another three clearly stated that no unacceptable consequences should be expected. However, these answers might concern only the individual situation of the respondent or reflect the impact on the local situation.

The majority of the contributors expressed their concerns with respect to the effects of a phasing out.

In summary, financial consequences are expected for different reasons. The renewal of the creosoted wood by either alternative materials or by using alternative wood preservatives is most often mentioned as very costly. In addition, it is deemed that expenses for development of substitutes would be very high as well. Since these substitutes are considered to have inferior properties compared to creosote, the overall conviction shows increasing costs for maintenance.

Several reports presented estimates of substantial financial burden. Although it is difficult to verify these figures, these vary between € 1.7 million and € 4 billion depending on the described impact. (e.g. € 3 billion needed to upgrade Swedish railway track, burden of € 4 billion for Greek companies)

Speaking in terms of employment, nine respondents noted the loss of turnover for related industries, and in particular for producers of creosoted wood causing the loss of a significant number of jobs.

More specifically, one of the consequences could be the loss of market share of railway transport in favour of road transport. From the environmental point of view, this is not recommendable. Four contributors note the possible risks to cultures (e.g. wooden stakes in fruit cultures) and defend the need for creosoted fences for horses.

The phasing out of creosote is considered to cause major operational problems by nearly half of the respondents. The replacement of creosoted wood (sleepers and poles) would disturb railway transport significantly. Transmission of electric power may be interrupted and qualitative telecommunication might not be guaranteed temporarily. A fifth of the respondents were convinced that these infrastructural problems may trigger difficulties as regards safety.

Furthermore it has been highlighted that, at this time, the waste management industry might not be ready to cope with the disposal of the massive stocks of creosoted wood if this would be decided.

2.2.2. The availability of less hazardous or non-hazardous alternatives

During the consultation several alternatives have been suggested. One can consider three groups:

Alternative wood preservatives

Most frequently mentioned are Copper based products like CCB (Copper, Chromium, Boron) CCF (Copper, Chromium, Fluorides) and CCA (Copper, Chromium, Arsenic). Although this last one has been removed from the market following the ban of arsenic, CCA was mentioned several times as a substitute which matches most with creosote.

CCB and CCF are widely available on the EU market for use as wood preservatives.

A third of the respondents stated that there is no reliable alternative wood preservative fulfilling the demands properly or matching the performances of creosote.

Alternative materials

Concrete is repeatedly cited for use as railway sleepers and for poles. In some EU countries a significant part of the railway infrastructure is equipped with the so-called mono-bloc or bi-bloc concrete sleepers. Untreated hardwood like azobe is another substitute but concerns are raised about the desirability to use it for these applications.

Likewise, creosoted poles in overhead wire networks for electricity and telecommunication may be replaced by metal (steel) or concrete poles.

Less mentioned is substitution by plastics (composites, recycled plastics) and even fibreglass which serve also for most of the purposes.

Quite a few respondents (six) stated that there is no reliable alternative material fulfilling the demands properly or matching the performances of creosoted wood.

Alternative treatment techniques

The existence of alternative treatment techniques for wood has been reported. Heat treatment, chemical modification and hydrophobing are optional methods to treat wood without biocidal preservatives (modified wood).

A system has been developed to improve the traditional impregnation by means of an emulsion made from WEI-C creosote, water and pigments used in a sealed treatment system. This should provide for enhanced safety conditions, at least during the treatment.

Several contributors referred to the results of Life Cycle Analysis Studies (LCA)[2]. But these are sometimes difficult to compare and regional differences can change the outcome of such studies.

The consultation revealed that when preference was explicitly shown, five respondents preferred an alternative wood preservative and six favoured a different material for their

[2] Life Cycle Analysis is the assessment of the environmental aspects of a product and its potential impacts on the environment from the production until its disposal. It takes into account all the relevant energy and material inputs and environmental releases.

application. Almost a quarter of the respondents communicated firmly that there is no alternative at all.

2.2.3. Advantages and disadvantages of the use of possible alternatives

According to the information received, very few advantages can be expected from the use of alternatives for creosote and creosoted wood. Only three out of 50 contributors recognise the performance of other wood preservatives. Please find below a listing of the most frequently noticed disadvantages of the substitutes.

As regards different materials, 18 respondents acknowledged the *inferior mechanical properties or technical limitations* compared to creosoted wood. Wood is a relatively light material, easy to transport and manipulate and has interesting technical characteristics. For example, concrete has a lower knock resistance which means that higher ballasts are needed when used in railway tracks. It is said this is not feasible on every location. Even more it is stated that due to the different technical properties it is difficult to mix both materials in the same track. Wooden poles allow the safe climbing of workers at overhead infrastructures. Besides it was noted that wood offers more possibilities with respect to architecture and aesthetics in the construction sector.

Due to the intrinsic capacities of creosote, companies will face *difficulties in maintenance* (mentioned eight times) if creosote would be replaced.

The *longer service lifetime of creosoted wood* is raised by 18 contributors. It is however not entirely clear whether or not this is based on experiences with the same types of creosote as the ones currently under evaluation.

Taking into account the previous remarks it has been brought up numerous times that the use of other materials will certainly increase *the costs* for society.

The outcome concerning the alternative wood preservatives is nearly similar. The properties of these substitutes are deemed not to match the performances of creosote. The reliability is contested for wood in ground contact in case of long service life or in marine environment (use class 4 and 5). Only three contributors believe in the capacities of the alternative.

The issue of additional costs was less mentioned with regards to other wood preservatives. The reason might be that no new or additional equipment is needed to treat the wood.

Half of the comments pointed out the possible higher environmental impact of alternatives. These comments refer mainly to the carbon sink effect of forests and the carbon storage effect of wood products. The capacity to store the carbon, initially trapped in trees, is considered to be a significant contribution to reduce the CO_2 in the atmosphere by substitution of so-called carbon-intensive materials by wood products, at least as long as the wood product remains in use. The more wood products are used the stronger this effect will be.

Secondly, a shift to environmentally unfriendly production techniques might happen.

2.2.4. Practicability of possible alternatives, large scale use

As mentioned in the previous chapter the mechanical properties and the environmental disadvantage of substitutes are deemed to be the key matters questioning the practicability of

alternatives in large scale, industrial use. This is mostly related to a shift towards other materials.

During the consultation three respondents affirmed the availability of substitutes for industrial use, nine stated the opposite, while the great majority did not openly comment on this.

2.2.5. Estimation of the time needed for new developments

It appears to be clear that it is very difficult to make assumptions on when appropriate alternatives will be available, if not existing yet. Only six respondents provided some ideas going from 'a long time but not possible to estimate' to times between 15 and 30 years.

2.2.6. Alternatives used in connection with cultural heritage or protected constructions

Most of the respondents are not directly involved with preservation of cultural heritage, in fact only two contributors are. One of them testified that a ban would have a negative effect, especially on museum and tourist railways. The renewal of the infrastructure would be too costly. Moreover, the use of creosoted railway sleepers is judged to be part of the cultural history.

However, others stated that alternatives and techniques are available to maintain the appearance and decay resistance of historic creosoted timbers.

3. Conclusion

A large majority of the respondents support the inclusion of creosote in Annex I to the Biocidal Products Directive. Three are clearly against.

There is a broad opinion as regards the financial and economic burden of a phasing out of creosote which is expected to be high. It is noted that qualitative operation of infrastructures (railways, utility networks…) might not be guaranteed, by other materials or techniques.

Various views upon alternatives are provided. However, the main opinion is that most of them do not fulfil the demands properly.

The use of creosoted railway sleepers is pointed out as being vital for a qualitative and efficient management of railway infrastructure. The replacement by other materials would entail excessive costs and operational burden for society. Notably the strengthening of ballasts, the impossibility to use different materials within one track and the limited service life of substitutes, are considered as the main advantages of creosoted wood for these heavy duty applications.

A majority of the contributors is in favour of use of wooden poles in overhead utility networks. Although there might be a shift towards underground networks, it seems to be obvious that overhead distribution of electricity power and telecommunication in rural areas is preferred because of practical and financial reasons. Wood is easily transported and handled on the spot, and creosoted poles have an extensive service time. Moreover, from the perspective of safety, accidents by sudden breakages of poles in case of climbing can be avoided by using creosoted poles.

During this consultation, stakeholders frequently mentioned not only the environmental aspect of the use of creosoted wood but also laid emphasis on the security measures already taken and monitoring programmes as regards workers.

The aim of the consultation was to provide additional information on top of the scientific assessment performed in the review programme allowing taking a sound decision. Following the nature and application fields of creosoted wood, it should be born in mind that the impact of such a decision can differ due to the regional variations within the EU.

Finally, the consultation did not demonstrate clear evidence on the current market shares of the alternatives compared to creosote. This would have given a supplementary idea about the impact of a possible phasing out of creosote.

ANNEX

Comments from:	Activity	Country
Arch Timber Protection	Supplier industrial wood preservatives	UK
Austrian Federal Railways	Public railways	AT
Banverket_Sweden	Infrastructure railways	SE
Belgian wood workers industry (Fedustria)	Industry association	BE
Confemadera	Industry association	ES
Creosote Council Europe	Industry association	EU
Dr. M. Marmetschke	Producer treated wood	DE
Dutch Competent Authorities	National Government	NL
Dutch Fruit Growers Organisation	Industry association	NL
EIM - CER	Railway sector association	EU
Energy Networks Association	Industry association	UK
English Heritage	Cultural heritage	UK
Eskom-South Africa	Supplier treated wood	SA
ETNO	Industry association	EU
EURELECTRIC	Industry association	EU
EURELECTRIC February 2008		
European Institute for Wood Preservation WEI	Industry association	EU
FEDECRAIL	Cultural heritage	EU
Finnish Energy Industries and FICOM February 2008	Industry association	FI
Finnish Energy Industries and FICOM		
Finnish Wood Preserving Association	Industry association	FI
French Authorities	National Government	FR
German Wood Preserving Association	Industry association	DE
German Wood pole Association	Industry association	DE
Greek Competent Authorities	National Government	EL
Holz Peper	Producer treated wood	DE
Hungarian Competent Authorities	National Government	HU
Hungarian National Railways, H-Budapest	Public railways	HU
Iivari Mononen	Producer treated wood	FI
Impregnacija	Producer treated wood	SI
Latvian Railway Company	Public railways	LV
Margaritelli	Producer treated wood	IT
Northern Ireland Electricity	Producer electricity	UK
Norwegian Electricity Industry Association	Industry association	NO
Norwegian Public Roads Administration	Infrastructure public roads	NO
NS Spooraansluitingen B.V.	Infrastructure railways	NL
Openreach	Infrastructure overhead networks	UK
Prague Timber Institute	Industry association	CZ
Protim Solignum Limited trading as Osmose	Producer wood preservatives	UK
Public Power Corporation (Greece)	Producer Electricity	EL
QA Association for Impregnated Timber Construction Elements	Industry association	DE
Réseau ferré de France	Infrastructure railways	FR
Rundvirke Poles AB	Producer treated wood	SE
SNCF (French Railways)	Public railways	FR
Society for Research on Wooden Railway Sleepers	Industry association	DE
Society for Research on Wooden Railway Sleepers-additional info		
Technische Holzprodukte Handels	Producer treated wood	DE
Telefónica	Telecommunication	ES
TeliaSonera Skanova Access AB	Infrastructure overhead networks	SE
Van Swaay	Producer treated wood	NL
VHN	Industry association	NL
VR-Track Ltd	Public railways	FI
Wood Protection Association	Industry association	UK