



2007-101B: Draft sulphuryl fluoride fumigation of nematodes and insects in debarked wood

Comm. no.	Para. no.	Comment type	Comment	Explanation	Country
1.	G	Editorial	Table 2 needs to be corrected	If Table 2 is corrected, then the figures in Table 1 become congruent with the figures in Table 2.	New Zealand
2.	G	Editorial		It may be appropriate to consider combining the most stringent aspects of both document 2007-101B) and document 2007-101A in order to avoid confusion ?. The technical panel should pay attention to spacing between words (e.g. paragraph 6, 7 & 9 etc.) throughout the document. We have however noted the final stage in the "Major stages" (paragraph 2) , which states the following: "2014-11 SC agreed to split Sulphuryl fluoride fumigation of wood packaging material (2007-101) into two separate topics: Sulphuryl fluoride fumigation of insects in debarked wood (2007-101A) and Sulphuryl fluoride fumigation of nematodes and insects in debarked wood (2007-101B)."	South Africa
3.	G	Substantive	I support the document as it is and I have no comments		Georgia, Nepal, Kenya, Mexico, Congo, Barbados, Philippines, Belize, Guyana, Ghana
4.	G	Substantive		It might be less confusing to have an annex that deals solely with insects, and another annex that deals solely with nematodes.	Singapore
5.	G	Substantive	Clarification required that this treatment has only been proven to be effective against one nematode and three insect species.	Although the body of the text explains this treatment is for one nematode and 3 insects, the name and scope of this treatment are potentially misleading to NPPOs. Sulphuryl fluoride fumigation of insects in debarked wood suggests that the treatment is effective against all insects associated with debarked wood.	Australia
6.	G	Substantive		Standard is timely and makes reference to 4 wood boring pest. with mortality at the 95 % confidence level for wood borne life stages . Is data on other wood borers limited or in the research in its infancy?	Jamaica
7.	G	Substantive	Put off adopting the draft.	1. When CT product is 3000 g.h/m3, the pine wood nematode can not be completely killed at 20°C. Bonifacio L. (2014)	China

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				showed the results as follow: Boards were fumigated for 24 h at three different temperatures (15, 20 and 30 °C) with dosage ranges of 31 69-4407, 1901 -4051 and 1385-2141 g.h m-3 respectively. No survival was found in the 15 °C and 30 °C treatments, while at 20 °C the mortality ranged from 94.06 to 100%. So further studies are needed to obtain the most effective dosage at 20°C, and to determine the toxicity of SF fumigation on <i>B.xylophilus</i> at other temperatures, especially at 25°C. Reference: Bonifacio L., Sousa, E., Naves, P., et al. 2014. Efficacy of sulfuril fluoride against the pinewood nematode, <i>Bursaphelenchus xylophilus</i> (Nematoda: Aphelenchidae), in <i>Pinus pinaster</i> boards. <i>Pest Management Science</i> , 70: 6-13. 2. The effect of Methyl bromide and sulphuryl fluoride on pathogenic fungi and nematode is poor, and lack of experimental data support. Jiangsu, Shanghai and other ports intercepted pine wood nematode from American wood repeatedly, that the wood has been treated by Methyl bromide.	
8.	G	Substantive	<p><u>1. Target pests of this treatment are Wood-borne life stages of <i>Bursaphelenchus xylophilus</i> (Steiner & Buhner) Nickle and insects, including <i>Anoplophora glabripennis</i> (Motschulsky), <i>Anobium punctatum</i> (De Geer) and <i>Arhopalus tristis</i> (Fabricius). But the title and scope of the treatment cover all nematodes. Therefore actually this treatment is for <i>Bursaphelenchus xylophilus</i> and insects and this should be reflected in the title and scope.</u></p> <p>-</p> <p><u>2. Treatment efficacy specified for <i>Bursaphelenchus xylophilus</i> in paragraph 16 should be revised because it is not consistent with efficacy in Bonifácio et al 2013.</u></p> <p>-</p> <p><u>3. Paragraph 20 provide that “the measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose.</u></p>	See comment.	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay

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			<u>and must be at least 15 °C (including at the wood core) throughout the duration of the treatment." We would like to request the TPPT to clarify the reasons for mentioning this temperature at the wood core throughout the treatment, taking into account the operative difficulties this requirement could cause. For other fumigation treatments only the ambient temperature is recorded throughout the treatment.</u>		
9.	G	Substantive	<u>Es necesario revisar y corregir las tablas porque están movidas y no existe correlación entre las dosis iniciales y la siguiente (0.5 h después). este comentario afecta al párrafo 14 y al 25. Es recomendable para un mejor entendimiento de este protocolo que las partes contratantes cuenten con más información, si bien aparecen las referencias al final del documento, éstas no están accesibles.</u>	Para una mejor comprensión de los tratamientos, sus similitudes y diferencias.	Costa Rica
10.	1	Editorial	DRAFT SULPHURYL FLUORIDE FUMIGATION OF <u>DEBARKED WOOD AGAINST NEMATODES AND INSECTS</u> IN DEBARKED WOOD (2007-101B)	It's the wood that is treated, not the insects or nematodes. The treatment is performed against pests that may be present in the wood.	EPPO, Austria, Norway
11.	1	Editorial	DRAFT SULPHURYL FLUORIDE FUMIGATION OF NEMATODES AND INSECTS IN DEBARKED WOOD (2007-101B)	Would the accepted spelling of this chemical's name be standardized as either sulfuryl fluoride or sulphuryl fluoride?	South Africa
12.	1	Editorial	DRAFT SULPHURYL FLUORIDE FUMIGATION OF <u>FOR</u> NEMATODES AND INSECTS IN <u>ON</u> DEBARKED WOOD (2007-101B)	To be consistent with other approved treatment	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay
13.	1	Editorial	PROYECTO DE FUMIGACIÓN DE MADERA <u>DESCORTEZA</u> NEMATODOS E <u>INSECTOS EN MADERA DESCORTEZADA</u> CON FLUORURO DE SULFURILO <u>CONTRA Bursaphelenchus xylophilus, Anoplophra glabripennis, Anobium punctatum y Arthopalus tris</u> (2007-101B)	Para mejor comprensión	Costa Rica
14.	1	Technical	DRAFT SULPHURYL FLUORIDE FUMIGATION OF <u>DEBARKED WOOD AGAINST NEMATODES AND INSECTS</u> IN DEBARKED WOOD (2007-101B)	It's the wood that is treated, not the insects or nematodes. The treatment is performed against pests that may be present in the wood.	European Union

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15.	1	Translation	DRAFT SULPHURYL FLUORIDE FUMIGATION OF NEMATODES AND INSECTS IN DEBARKED WOOD (2007-101B)	Translation into Spanish should be "FUMIGACIÓN CON FLUORURO DE SULFURIO CONTRA INSECTOS Y NEMATODES EN MADERA DESCORTEZADA"	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay
16.	4	Editorial	This treatment describes applies to the fumigation of debarked wood using sulphuryl fluoride (SF) to reduce the risk of introduction and spread of pest nematodes and insects ¹ .	Suggested edit is for consistency between PTs. Suggest using "describes" rather than "applies to" or "comprises"	Canada
17.	4	Editorial	This treatment applies to the fumigation of debarked wood using sulphuryl fluoride (SF) to reduce the risk of introduction and spread of pest nematodes and insects pests ¹ .	Editorial correction.	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay
18.	4	Editorial	El presente tratamiento <u>con fluoruro de sulfurio</u> es aplicable a la fumigación de madera descortezada con fluoruro de sulfurio para reducir el riesgo de introducción y dispersión de plagas de nematodos e insectos¹ contra <u>Bursaphelenchus xylophilus, Anoplophora glabrypennis, Anobium punctatum y Arhopalus tristis</u> .	Para una mejor comprensión del texto.	Costa Rica
19.	4	Substantive	This treatment applies to the fumigation of debarked wood using sulphuryl fluoride (SF) to reduce the risk of introduction and spread of pest nematodes and insects ¹ .	Definition of a pest according to ISPM 5 encompasses insects, nematodes, and pathogens etc. Hence the word "pest" could be excluded.	Singapore
20.	4	Substantive	This treatment applies to the fumigation of debarked wood using sulphuryl fluoride (SF) to reduce the risk of introduction and spread of pest the nematode, Bursaphelenchus xylophilus and insects, <u>Anoplophora glabripennis, Anobium punctatum and Arhopalus tristis</u> ¹ .	Whilst this treatment could be effective against other nematodes and insects, the efficacy data only supports the inclusion of one nematode and three insect species and this should be made clear in the scope of the treatment.	Australia
21.	4	Substantive	This treatment applies to the fumigation of debarked wood using sulphuryl fluoride (SF) to reduce the risk of introduction and spread of pest nematodes and insects ¹ .	Is this relevant to only these particular species or extrapolated to other species of insects and nematodes?	United States of America
22.	4	Technical	This treatment applies to the fumigation of debarked wood using sulphuryl fluoride (SF) to reduce the risk of introduction and spread of pest nematodes and insects ¹ .	The role of ISPMs is harmonization. Therefore, the extrapolation should be addressed and the explanation is given why no additional data is needed for other insects or nematodes. Common concern that we experience is the understanding of the nature of the treatments in relation to the	United States of America

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				broad range of organisms, rather than only those that are mentioned in paragraph 9, for example.	
23.	6	Editorial	Name of treatment Sulphuryl fluoride fumigation of <u>debarked wood against</u> nematodes and insects in debarked wood	It's the wood that is treated. The treatment is performed against pests that may be present in the wood.	EPPO, Austria, Norway
24.	6	Editorial	Name of treatment Sulphuryl fluoride fumigation of <u>for</u> nematodes and insects in on debarked wood	To be consistent with other approved treatments.	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay
25.	6	Editorial	Nombre del tratamiento Fumigación de nematodos e insectos en madera descortezada con fluoruro de sulfurilo <u>contra Bursaphelenchus xylophilus, Anoplophora glabripennis, Anobium punctatum y Arhopalus tristis</u>	Coherencia con lo que se propone	Costa Rica
26.	6	Substantive	Name of treatment Sulphuryl fluoride fumigation of the nematode, <u>Bursaphelenchus xylophilus</u> and insects, <u>Anoplophora glabripennis, Anobium punctatum and Arhopalus tristis</u> in debarked wood	Needed clarification that this treatment is known to be effective for the three listed insects and one nematode species and not all insects and nematodes.	Australia
27.	6	Technical	Name of treatment Sulphuryl fluoride fumigation of <u>debarked wood against</u> nematodes and insects in debarked wood	It's the wood that is treated. The treatment is performed against pests that may be present in the wood.	European Union
28.	9	Editorial	Target pests Wood-borne life stages of <u>pine wood nematode (Bursaphelenchus xylophilus (Steiner & Buhner) Nickle)</u> and insects, including <u>Anoplophora glabripennis (Motschulsky), Anobium punctatum (De Geer) and Arhopalus tristis (Fabricius)</u>	for writing consistency	Indonesia
29.	9	Substantive	Target pests Wood-borne life stages of <u>Bursaphelenchus xylophilus (Steiner & Buhner) Nickle</u> and insects, including Anoplophora glabripennis (Motschulsky), Anobium punctatum (De Geer) and Arhopalus tristis (Fabricius) <u>Delete three insects in target pests.</u>	The Draft 2007-101A has showed the CT product and dose of Anoplophora glabripennis, Arhopalus tristis and Anobium punctatum.	China
30.	9	Technical	Target pests Wood-borne life stages of <u>Bursaphelenchus xylophilus (Steiner & Buhner) Nickle</u> and insects, including <u>Anoplophora glabripennis (Motschulsky), Anobium punctatum (De Geer) and</u>	Add a footnote here (or elsewhere in this draft) that the wood is debarked and therefore does not contain the eggs, and the standard is not aiming at the effectiveness against the eggs (the eggs are laid in the bark).	United States of America

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			<i>Arhopalus tristis</i> (Fabricius)		
31.	9	Translation	Target pests Wood-borne life stages of <i>Bursaphelenchus xylophilus</i> (Steiner & Buhner) Nickle and insects, including <i>Anoplophora glabripennis</i> (Motschulsky), <i>Anobium punctatum</i> (De Geer) and <i>Arhopalus tristis</i> (Fabricius)	Wood-borne life stages of insects should be translate into Spanish as "estados de desarrollo de insectos en la madera"	COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay
32.	10	Technical	Target regulated articles Debarked wood not exceeding 20 cm in cross-section and 60% moisture content	The treatment should elaborate where to measure the moisture content (surface vs core of the wood) and how precise is the measuring equipment measuring at 60% moisture (is the device handheld or other type?)	United States of America
33.	12	Editorial	Fumigation of debarked wood not exceeding 20 cm in cross-section and 60% moisture content in accordance with a schedule that achieves the minimum concentration-time (CT) product (CT) over 24 or 48 hours at the temperature and final residual concentration specified in Table 1.	for writing consistency	Indonesia
34.	12	Technical	Fumigation of debarked wood not exceeding 20 cm in cross-section and 60% moisture content in accordance with a schedule that achieves the minimum concentration-time (CT) product ever within a single 24 or 48 hours period at the temperature and final residual concentration specified in Table 1. <u>The minimum temperature of the wood and its surrounding atmosphere must not be less than 20 degrees.</u>	To clearly state the requirement on treatment time and temperature.	EPPO, European Union, Austria, Norway
35.	12	Technical	Fumigation of debarked wood not exceeding 20 cm in cross-section and 60% moisture content in accordance with a schedule that achieves the minimum concentration-time (CT) product over 24 or 48 hours at the temperature and final residual concentration specified in Table 1.	The draft doesn't explain that during fumigation, a significant reduction in air temperature may occur following gas introduction. This could affect the efficacy of fumigation, particularly those occurring at the lower temperature ranges of the schedule.	United States of America
36.	13	Editorial	Table 1. Minimum concentration-time (CT)-product over 24 or 48 hours for debarked wood fumigated with sulphuryl fluoride	for writing efficiency	Indonesia
37.	13	Technical	Table 1. Minimum concentration-time (CT) product ever within a single 24 or 48 hours period for debarked wood fumigated with sulphuryl fluoride	To be claear about the requirements.	EPPO, European Union, Austria, Norway

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38.	13	Technical	Table 1. Minimum concentration-time (CT) product over 24 or 48 hours for debarked wood fumigated with sulphuryl fluoride	Transparency requires for calculation for determining the CT. There are multiple ways to determine the CT products, and the headspace fumigant monitoring will influence the resulting CT product. We highly recommend that the calculation used to establish the CT product be defined with additional provisions to be used when the target CT product is not achieved by the end of the treatment period. Please verify the minimum concentration at 3 000 CT	United States of America									
39.	14	Editorial	<table border="1"> <thead> <tr> <th>Temperature and duration (°C)</th> <th>Minimum CT product (g·h/m³)</th> <th>Minimum concentration (g/m³)</th> </tr> </thead> <tbody> <tr> <td>20 °C and above for 48 hours</td> <td>3 000</td> <td>29</td> </tr> <tr> <td>30 °C and above for 24 hours</td> <td>1 400</td> <td>41</td> </tr> </tbody> </table>	Temperature and duration (°C)	Minimum CT product (g·h/m ³)	Minimum concentration (g/m ³)	20 °C and above for 48 hours	3 000	29	30 °C and above for 24 hours	1 400	41	for writing efficiency	Indonesia
Temperature and duration (°C)	Minimum CT product (g·h/m ³)	Minimum concentration (g/m ³)												
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40.	14	Substantive	<table border="1"> <thead> <tr> <th>Temperature and duration</th> <th>Minimum CT product (g·h/m³)</th> <th>Minimum concentration (g/m³)</th> </tr> </thead> <tbody> <tr> <td>20 °C and above for 48 hours</td> <td>3 000</td> <td>29</td> </tr> <tr> <td>30 °C and above for 24 hours</td> <td>1 400</td> <td>41</td> </tr> </tbody> </table>	Temperature and duration	Minimum CT product (g·h/m ³)	Minimum concentration (g/m ³)	20 °C and above for 48 hours	3 000	29	30 °C and above for 24 hours	1 400	41	It would be better to have minimum CT product and minimum concentration values for "20 degrees celsius and above for 24 hours", and "30 degrees celsius and above for 48 hours".	Singapore
Temperature and duration	Minimum CT product (g·h/m ³)	Minimum concentration (g/m ³)												
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41.	14	Technical	<table border="1"> <thead> <tr> <th>Temperature and duration</th> <th>Required Minimum CT product (g·h/m³)</th> <th>Minimum final concentration (g/m³)</th> </tr> </thead> <tbody> <tr> <td>20 °C and above for 48 hours</td> <td>3 000</td> <td>29</td> </tr> <tr> <td>30 °C and above for 24 hours</td> <td>1 400</td> <td>41</td> </tr> </tbody> </table>	Temperature and duration	Required Minimum CT product (g·h/m ³)	Minimum final concentration (g/m ³)	20 °C and above for 48 hours	3 000	29	30 °C and above for 24 hours	1 400	41	1. "required " - consistency with other draft ISPMs 2. It is unclear at what stage is the concentration given in the table. It is the final concentration, so it should be stated for clarity.	EPPO, European Union, Austria, Norway
Temperature and duration	Required Minimum CT product (g·h/m ³)	Minimum final concentration (g/m ³)												
20 °C and above for 48 hours	3 000	29												
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42.	14	Technical	<table border="1"> <thead> <tr> <th>Temperature and duration</th> <th>Minimum CT product (g·h/m³)</th> <th>Minimum concentration (g/m³)</th> </tr> </thead> <tbody> <tr> <td>20 °C and above for 48 hours</td> <td>3 000</td> <td>29</td> </tr> <tr> <td>30 °C and above for 24 hours</td> <td>1 400</td> <td>41</td> </tr> </tbody> </table>	Temperature and duration	Minimum CT product (g·h/m ³)	Minimum concentration (g/m ³)	20 °C and above for 48 hours	3 000	29	30 °C and above for 24 hours	1 400	41	Bonifacio L. (2014) showed the results as follow: Boards were fumigated for 24 h at three different temperatures (15, 20 and 30 °C) with dosage ranges of 31 69-4407, 1901 -4051 and 1385-2141 g.h m-3 respectively. No survival was found in the 15 °C and	China
Temperature and duration	Minimum CT product (g·h/m ³)	Minimum concentration (g/m ³)												
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20 °C and above for 48 hours	3 000	29									
30 °C and above for 24 hours	1 400	41									
43.	16	Technical	<ul style="list-style-type: none"> <i>Bursaphelenchus xylophilus</i> to not less than 99.99683% 	While the IPPC proposed a minimum CT product of 3000 g h/m ³ for 48-hour SF fumigations of nematodes and insects in debarked wood at 20°C and above, Bonifacio et al. (2013) reported the occurrence of 1827 survivors out of 3,261,653 pine wood nematodes treated under the same time and temperature parameters at a CT of 3216 g h/m ³ at wood moisture contents of 61.3% and 18.6% forty-eight hours before and 21 days after fumigation, respectively. This equates to a treatment efficacy less than probit-9 at the 95% confidence level. Which particular reference is used to obtain data for <i>B. xylophilus</i> ? Moisture content of WPM is typically between 15-20% (Bonifacio et al 2013) and at this level of moisture, it is not conducive to nematode transfer (Sousa et al 2011). However, the draft permits treatment at up to 60% moisture content, a level does allow nematode movement (Sousa et al 2011). Furthermore, Sousa et al. (2011) indicated that newly-sawn wood may not drop below fibre-saturation point for up to six weeks, and wood products or packaging material may pose a risk for up to 40 weeks after entering service. Therefore, we consider that lowering the moisture content for this treatment is appropriate in order to achieve the specified efficacy.	United States of America						
44.	17	Substantive	<ul style="list-style-type: none"> <i>Anoplophora glabripennis</i> (larvae and pupae) to not less than 99.99683%² 	The Draft 2007-101A has showed the CT product and dose of <i>Anoplophora glabripennis</i> , <i>Arhopalus tristis</i> and <i>Anobium punctatum</i> .	China						
45.	18	Substantive	<ul style="list-style-type: none"> <i>Anobium punctatum</i> (all life stages) to not less than 99.7462% 	The Draft 2007-101A has showed the CT product and dose of <i>Anoplophora glabripennis</i> , <i>Arhopalus tristis</i> and <i>Anobium punctatum</i> .	China						
46.	18	Technical	<ul style="list-style-type: none"> <i>Anobium punctatum</i> (all life stages) to not less 	The efficacy of this treatment is close to probit 9, and is probably not aiming at achieving that efficacy. It may be helpful if it is	United States of America						

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			than 99.7462%	explained in a footnote.	
47.	19	Substantive	<ul style="list-style-type: none"> Arhopalus tristis (all life stages) to not less than 99%. 	The Draft 2007-101A has showed the CT product and dose of Anoplophora glabripennis, Arhopalus tristis and Anobium punctatum.	China
48.	19	Technical	<ul style="list-style-type: none"> Arhopalus tristis (all life stages) to not less than 99%. 	The efficacy of this treatment is close to probit 9, and is probably not aiming at achieving that efficacy. It may be helpful if it is explained in a footnote.	United States of America
49.	20	Editorial	La temperatura medida <u>más baja ya sea en el centro de la madera o ambiental se utilizará para calcular las dosis de flupruro de sulfuro y debe mantenerse en el producto o en el aire ambiental (el más bajo entre ambos valores) se utilizará para calcular la dosis del fluoruro de sulfuro y debe ser por lo no</u> menos de 15 °C (incluso en el centro de la madera) por toda la duración del tratamiento.	Para mejor comprensión del texto.	Costa Rica
50.	20	Substantive	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 15 <u>20</u> °C (including at the wood core) throughout the duration of the treatment.	This draft and the draft on the revision of Annex 1 to ISPM 15 mentions min. 20 degrees	EPPO, Austria, Norway
51.	20	Substantive	The measured temperature of the product <u>(including at the wood core)</u> or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 15 <u>20</u> °C <u>(including at the wood core)</u> throughout the duration of the treatment.	Text in brackets moved to a better place. This draft and the draft on the revision of Annex 1 to ISPM 15 mentions min. 20 degrees	European Union
52.	20	Substantive	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 15 <u>or 20</u> °C (including at the wood core) throughout the duration of the treatment.	The minimum temperature of the wood in the draft revision annex to ISPM 15 is defined at 20C, while this draft annex to ISPM 28 is defined at 15C. The corrected temperature should be clarified.	Thailand
53.	20	Substantive	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 15 °C (including at the wood core) throughout the duration of the treatment.	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 15 °C (including at the wood core) throughout the duration of the treatment. However, the treatment schedule start only at 200 C So, should point no. 20 be amended or the treatment schedule should be amended to be 15o C.	Bahrain
54.	20	Substantive	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 15 °C (including at the wood core)	If the treatment schedule indicates a minimum of 20°C, it shouldn't be same here?	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay

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			throughout the duration of the treatment.																																
55.	20	Technical	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 20 15 °C (including at the wood core) throughout the duration of the treatment.	To ensure consistency with the treatment schedule in Table 2.	Japan																														
56.	20	Technical	The measured temperature of the product or the ambient air (whichever is lower) is used to calculate the SF dose, and must be at least 20 15 °C (including at the wood core) throughout the duration of the treatment.	This is not clear how the temperature in paragraph 20 relates to the temp in table 1. Should this be 20 C as above? This is the same text as in Schedule 2007-101A	United States of America																														
57.	21	Substantive	National plant protection organizations shall ensure that the above requirement is followed by those involved in the application of SF under this treatment.	The sentence is not needed and inconsistent with other treatment annexes.	EPPO, European Union, Austria, Norway																														
58.	21	Technical	National plant protection organizations shall ensure that the above requirement is followed by those involved in the application of SF under this treatment.	This is not part of the treatment.	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay																														
59.	23	Editorial	One example of a schedule that achieves the minimum required CT product for debarked wood treated with SF is shown in Table 2.	for writing efficiency	Indonesia																														
60.	24	Editorial	Table 2. Example of a treatment schedule that achieves the minimum required concentration-time (CT)-product for debarked wood treated with sulphuryl fluoride (SF)	for writing efficiency	Indonesia																														
61.	25	Editorial	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td rowspan="3" style="text-align: center; vertical-align: middle;">Mea n tem per atur e (°C)</td> <td style="text-align: center;">Min imu m tar get CT dos age (g· h/m³)</td> <td style="text-align: center;">S F do se * (g/ m³)</td> <td style="text-align: center;">Minimum concentration (g/m³) at hour:</td> <td colspan="6"></td> </tr> <tr> <td style="text-align: center;">0.5</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> <td style="text-align: center;">12</td> <td style="text-align: center;">2 4</td> <td style="text-align: center;">3 6</td> <td style="text-align: center;">4 8</td> <td colspan="3"></td> </tr> <tr> <td style="text-align: center;">20</td> <td style="text-align: center;">30</td> <td style="text-align: center;">12</td> <td style="text-align: center;">124</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">8</td> <td style="text-align: center;">5</td> <td style="text-align: center;">4</td> <td style="text-align: center;">2</td> </tr> </table>	Mea n tem per atur e (°C)	Min imu m tar get CT dos age (g· h/m ³)	S F do se * (g/ m ³)	Minimum concentration (g/m ³) at hour:							0.5	2	4	12	2 4	3 6	4 8				20	30	12	124	1	1	8	5	4	2	The width of columns need to be adjusted.	EPPO, Austria, Norway
Mea n tem per atur e (°C)	Min imu m tar get CT dos age (g· h/m ³)	S F do se * (g/ m ³)	Minimum concentration (g/m ³) at hour:																																
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and above	00	0		1	0	2	8	1	9																																			
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62.	25	Editorial	<table border="1"> <tr> <td rowspan="4">Mean temperature (°C)</td> <td>Minimum target CT dosage (g·h/m³)</td> <td>SF dose*</td> <td>Minimum concentration (g/m³) at hour:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>0.5</td> <td>2</td> <td>4</td> <td>12</td> <td>2</td> <td>3</td> <td>4</td> <td></td> <td></td> </tr> <tr> <td>20 and above</td> <td>3000</td> <td>120</td> <td>124</td> <td>1</td> <td>1</td> <td>8</td> <td>5</td> <td>4</td> <td>2</td> </tr> <tr> <td>30 and above</td> <td>1400</td> <td>82</td> <td>87</td> <td>7</td> <td>7</td> <td>5</td> <td>4</td> <td>N/A</td> <td>N/A</td> </tr> </table>	Mean temperature (°C)	Minimum target CT dosage (g·h/m ³)	SF dose*	Minimum concentration (g/m ³) at hour:							0.5	2	4	12	2	3	4			20 and above	3000	120	124	1	1	8	5	4	2	30 and above	1400	82	87	7	7	5	4	N/A	N/A	The width of columns need to be adjusted. Double star added next to N/A to refer to the explanation below the table - see EU comment on para [26].	European Union
Mean temperature (°C)	Minimum target CT dosage (g·h/m ³)	SF dose*	Minimum concentration (g/m ³) at hour:																																									
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69.	25	Technical	<table border="1"> <tr> <th>Mean temperature (°C)</th> <th>Minimum target CT dosage (g·h/m³)</th> <th>SF dose* (g/m³)</th> <th>Minimum concentration (g/m³) at hour:</th> </tr> <tr> <td>0.5</td> <td>2</td> <td>4</td> <td>12</td> </tr> <tr> <td>20 and above</td> <td>3 000</td> <td>120</td> <td>124</td> </tr> <tr> <td>30 and above</td> <td>1 400</td> <td>82</td> <td>87</td> </tr> </table> <p>When CT product is 3000 g.h/m³, the pine wood</p>	Mean temperature (°C)	Minimum target CT dosage (g·h/m ³)	SF dose* (g/m ³)	Minimum concentration (g/m ³) at hour:	0.5	2	4	12	20 and above	3 000	120	124	30 and above	1 400	82	87	<p>Bonifacio L. (2014) showed the results as follow: Boards were fumigated for 24 h at three different temperatures (15, 20 and 30 °C) with dosage ranges of 31 69-4407, 1901 -4051 and 1385-2141 g·h/m³ respectively. No survival was found in the 15 °C and 30 °C treatments, while at 20 °C the mortality ranged from 94.06 to 100%. So further studies are needed to obtain the most effective dosage at 20°C, and to determine the toxicity of SF fumigation on B.xylophilus at other temperatures, especially at 25 °C. Reference: Bonifacio L., Sousa, 24., Neves, 48., et al. 2014. Efficacy of sulfuryl fluoride against the pinewood nematode, Bursaphelenchus xylophilus (Nematoda: Aphelenchida), in Pinus pinaster boards. Pest Management Science, 70: 6-13.</p>	China																																																																
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70.	25	Technical	<table border="1"> <thead> <tr> <th rowspan="2">M e a n t e m p e r a t u r e (° C)</th> <th rowspan="2">M i n i m u m t a r g e t C T D o s e (g · h / m³)</th> <th colspan="8">Minimum concentration (g/m³) at hour:</th> </tr> <tr> <th>0.5</th> <th>2</th> <th>4</th> <th>12</th> <th>24</th> <th>36</th> <th>48</th> <th></th> </tr> </thead> <tbody> <tr> <td>20 and above</td> <td>3000</td> <td>120</td> <td>124</td> <td>112</td> <td>104</td> <td>82</td> <td>58</td> <td>41</td> <td>29</td> </tr> </tbody> </table>	M e a n t e m p e r a t u r e (° C)	M i n i m u m t a r g e t C T D o s e (g · h / m ³)	Minimum concentration (g/m ³) at hour:								0.5	2	4	12	24	36	48		20 and above	3000	120	124	112	104	82	58	41	29	Please explain the conditions under which the minimum concentration goes up within 30 minutes. Also explain when will these conditions occur for those who don't understand, adding more transparency. Please verify the numbers.	United States of America
M e a n t e m p e r a t u r e (° C)	M i n i m u m t a r g e t C T D o s e (g · h / m ³)	Minimum concentration (g/m ³) at hour:																															
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			<table border="1"> <tr> <td>30 and above</td> <td>1400</td> <td>82</td> <td>87</td> <td>78</td> <td>73</td> <td>58</td> <td>41</td> <td>N/A</td> <td>N/A</td> </tr> </table>	30 and above	1400	82	87	78	73	58	41	N/A	N/A		
30 and above	1400	82	87	78	73	58	41	N/A	N/A						
71.	26	Editorial	<p>* initial doses may need to be higher in conditions of high sorption or leakage</p> <p>** N/A, not applicable</p>	1) Capital at the beginning of the sentence. 2) The meaning of "N/A" should be specified.	EPPO, European Union, Austria, Norway										
72.	26	Editorial	<p>* initial doses may need to be higher in conditions of high sorption or leakage</p> <p>** N/A, not applicable.</p>	Lack of table footnote.	Brazil, COSAVE, Argentina, Peru, Uruguay, Chile, Paraguay										
73.	26	Technical	* initial doses may need to be higher in conditions of high sorption or leakage	There needs to be a list of sorptive products.	Jamaica										
74.	27	Substantive	The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment for <i>B. xylophilus</i> and insects on the research reported by Barak <i>et al.</i> (2006), Bonifacio <i>et al.</i> (2013) and Sousa <i>et al.</i> (2010).	this statement may be more appropriate as reference, is it needs to be included?	Indonesia										
75.	28	Substantive	The general effectiveness of this treatment has been supported by Barak <i>et al.</i> (2010), Binker <i>et al.</i> (1999), Bonifacio <i>et al.</i> (2013), Ducom <i>et al.</i> (2003), Dwinell <i>et al.</i> (2005), La Fage <i>et al.</i> (1982), Mizobuchi <i>et al.</i> (1996), Osbrink <i>et al.</i> (1987), Soma <i>et al.</i> (1996, 1997, 2001), Williams and Sprengel (1990) and Zhang (2006).	this statement may be more appropriate as a reference, is it needs to be included?	Indonesia										
76.	29	Technical	References	Add Sousa et al 2011 (full reference below), as discussed in US comments for paragraph 16. Sousa, E., P. Naves, L. Bonifacio, J. Henriques, M. L. Inacio, and H. Evans. 2011. Assessing risks of pine wood nematode <i>Bursaphelenchus xylophilus</i> transfer between wood packaging by simulating assembled pallets in service. OEPP/EPPO Bulletin 41: 423-431.	United States of America										
77.	30	Editorial	Barak, A., Myers, S. & Messenger, M. 2010. Sulphuryl fluoride treatment as a quarantine treatment for emerald ash borer (Coleoptera: Buprestidae) in ash logs. <i>Journal of Economic Entomology</i> , 103(3): 603–611.	Myers was not an author. Correct authors were: Alan V. Barak, Matthew Messenger, Paul Neese, Ellen Thoms, and Ivich Fraser.	United States of America										

Comm no.	Para no.	Comment type	Comment	Explanation	Country
78.	32	Technical	Binker, G., Binker, J., Fröba, G., Graf, E. & Lanz, B. 1999. Laboratory study on <i>Anobium punctatum</i> , number 130377/A and 403972 (bioassay 11–15), unpublished, Binker Materialschutz, Germany. In <i>Inclusion of active substances in Annex I to Directive 98/8/EC</i> : Assessment report: Sulphuryl fluoride, PT8, Appendix IV (List of studies), p. 29, September 2006.	The US was unable to obtain a copy of this reference	United States of America
79.	34	Editorial	Ducom, P., Roussel, C. & Stefanini, V. 2003. Efficacy of sulphuryl fluoride on European house borer eggs, <i>Hylotrupes bajulus</i> (L.) (Coleoptera: Cerambycidae), contract research project. Laboratoire National de la Protection des Végétaux, Station d'Etude des Techniques de fumigation et de Protection des Denrées Stockées, Chemin d'Artigues - 33150 Cenon, France. In <i>Inclusion of active substances in Annex I to Directive 98/8/EC</i> : Assessment report: Sulphuryl fluoride, PT8, Appendix IV (List of studies), p. 31, September 2006.	Four edits: missing "e" at the end of "Cerambycidae", "d" should be replaced by "d " (twice) and a space is missing before "33150".	EPPO, European Union, Austria, Norway
80.	34	Technical	Ducom, P., Roussel, C. & Stefanini, V. 2003. Efficacy of sulphuryl fluoride on European house borer eggs, <i>Hylotrupes bajulus</i> (L.) (Coleoptera: Cerambycida), contract research project. Laboratoire National de la Protection des Végétaux, Station d'Etude des Techniques de fumigation et de Protection des Denrées Stockées, Chemin d'Artigues -33150 Cenon, France. In <i>Inclusion of active substances in Annex I to Directive 98/8/EC</i> : Assessment report: Sulphuryl fluoride, PT8, Appendix IV (List of studies), p. 31, September 2006.	The US was unable to obtain a copy of this reference	United States of America
81.	36	Technical	La Fage, J.P., Jones, M. & Lawrence, T. 1982. A laboratory evaluation of the fumigant, sulphuryl fluoride (Vikane), against the Formosan termite <i>Coptotermes formosanus</i> Shiraki. International Research Group on Wood Protection (IRGWP) Thirteenth Annual Meeting, Stockholm, May 1982. Stockholm, IRGWP Secretariat.	The US was unable to obtain a copy of this reference	United States of America
82.	39	Editorial	Soma, Y., Mizobuchi, M., Oogita, T., Misumi, T., Kishono, H., Akagawa, T. & Kawakami, F. 1997. Susceptibility of forest insect pests to sulphuryl fluoride. 3. Susceptibility to sulphuryl fluoride at 25°C. <i>Research Bulletin of the Plant Protection Service Japan</i> , 33: 25–30.	"25°C" instead of " 25C".	EPPO, European Union, Austria, Norway

Comm no.	Para no.	Comment type	Comment	Explanation	Country
83.	46	Substantive	Footnote 2: The minimum level of mortality achieved by the treatment for this species has been estimated by extrapolation from a model fitted to the experimental data.	Footnote 2 said: The minimum level of mortality achieved by the treatment for this species has been estimated by extrapolation from a model fitted to the experimental data. We think it is important to base these level of mortality on large scale data not on experimental data. Because the level of mortality will affect on the efficiency of the treatment. Taking into consideration that most countries looking now for an effective alternative to methyl bromide.	Bahrain