

**Justification of the minority position of the adopted SEAC opinion  
for the proposed restriction on Terphenyl, hydrogenated**

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Restriction option 3 (in the following RO3) can be considered proportionate. More importantly, besides the two extreme options for restricting the use of Terphenyl, hydrogenated (PTH) as a heat transfer fluid (HTF) (i.e. either a full ban from EoF + 18 months as reflected by RO3, or a time-unlimited derogation as reflected by RO1 and RO2), there is the option to implement a *time limited derogation* for the use of PHT as HTF. This option, which was not considered by the Dossier Submitter but was supported by RAC, can be considered proportionate based on socio-economic considerations. Furthermore, it can be considered relatively more proportionate than RO1 and RO2.

My arguments, which address both the benefit and the cost side of the restriction proposal, are as follows:

1. The Dossier Submitter constrained its assessment of emissions on the use phase of PHT only. Potential emissions during the manufacturing phase, and during the end-of-life phase, were not taken into account. RAC, therefore concluded that ‘there is a significant potential for additional releases that have not been taken into account in this analysis’ (see section 3.4.3 of RAC’s final opinion). Though the precise distribution of total emissions across different uses is not known, it cannot be ruled out that for all uses (including also the use as HTF) emissions will be higher than documented in Annex B of the restriction proposal. Thus, both in the quantitative assessment and in the qualitative information provided in the restriction proposal, **expected emissions for PHT used as HTF were underestimated.**
2. A socio-economic assessment of a substance that is known to be very persistent and very bioaccumulative, using emission estimates as a proxy for benefits and a time period for the assessment of just 20 years, is misleading because it **misinterprets the structural patterns of the pollution problem at hand, and therefore disregards the long-term benefits of restriction measures.** The reason is that emission estimates ignore persistence and, hence, remain silent about the accumulating pollution burden in the environment over time (i.e. the environmental stock) from which impacts and damages to the environment and to human health arise. This is independent of whether the assessment of benefits and costs is conducted quantitatively or based on qualitative arguments.
3. In their opinions, both RAC and SEAC emphasized that the environmental stock caused by emissions of PHT will be permanent (see section 2.2.1 of the RAC opinion, and section 3.4.4.4 of the SEAC opinion). As a consequence, each additional unit of emissions will contribute to increase the environmental stock, and will increase exposure and bioaccumulation with unknown long-term impacts for the environment and for human health. A time-unlimited derogation of PHT as HTF, as proposed under RO1 and RO2, will lead to a time-unlimited load of environmental stock. Considering the information about half-lives in freshwater, sediment and soil provided on the ECHA website and in the SVHC support document, **the environmental stock can be expected to ultimately converge to an environmental steady-state. A socio-economic assessment using emission estimates ignores this long-term concern.**
4. The precise amount of emissions arising from the use of PHT in HTF is unknown. Likewise, information about the relationship between the environmental stock (caused by emissions) and environmental or health damages is lacking. Notwithstanding, it cannot be ruled out that with on-going emissions the damage will be non-linear in stock. That is, marginal damages could be increasing over time. Since under a time-unlimited derogation of PHT used in HTF damages will occur over an infinite time period there is reason to assume that the long-term **benefits of a restriction on PHT used as HTF will be substantially higher than currently assumed by the Dossier submitter.** Furthermore, **a ban on the use of PHT as HTF (as proposed under RO3), or a time-limited derogation of PHT as HTF, are the only options to prevent an increase of the stock due to emissions of PHT in HTF.** While total benefits of a time-limited derogation

will be relatively lower compared to a ban (i.e. RO3), it will in any case be higher than under a time-unlimited derogation.

5. An important assumption to motivate the proportionality of RO1 and RO2 was that implementing technical containment and operational measures in strictly controlled closed systems (SCCS) will minimize emissions to the environment (see, for example, section 2.2 of SEAC's opinion). However, the concept of 'minimization' lacks a clear reference point. Therefore, 'minimization' neither means that emissions will become zero, not even that they will be reduced. It could even imply that emissions to the environment can further increase in the future. In their opinion, SEAC considered the latter a likely scenario since the use of PHT for Green and renewable energy installations is expected to increase in the future (see section 3.4.4.4 of SEACs opinion). Therefore, **the argument of minimizing emissions can neither support a conclusion on the proportionality of RO1 and RO2, nor on the disproportionality of RO3.**
6. An important argument for SEAC's conclusion of RO1 and RO2 being likely proportionate, and RO3 likely being not, is the lack of suitable alternatives, and the risk of regrettable substitution of PHT used as HTF in case of a ban or a time-limited derogation. However, drawing such conclusion would require insight into the spectrum of PHT applications at different sites, and into the technological criteria such as boiling temperature, thermal stability, and service life. Such insight was not provided by the Dossier Submitter. Neither the Dossier Submitter nor comments received during the Third Party Consultation provided evidence that applications for which suitable alternatives could be available are very rare or constitute only a very small part of the total sites. For the examples of sites using PHT as a HTF provided during the Third Party Consultation (see Table 8 in section 3.4.4.4 of SEAC's opinion) it would have been important to receive information whether all production processes are exclusively based on the use of PHT in high-temperature, pressurized systems. If not, it means that alternatives do exist, which could potentially be used for at least some applications on other sites as well (under low- and high temperature conditions). **In the absence of such information, a conclusion on the lack of suitable alternatives or regrettable substitution is insubstantial.**
7. There is **no robust evidence about the magnitude of social costs** (e.g. new investments) under a ban or a time-limited derogation of PTH used as HTF. The assessment provided by the Dossier Submitter is not credible as it is based on a number of behavioral assumptions deduced from a questionnaire which was not made available to SEAC (see also section 3.4.1 of SEAC's opinion). Furthermore, from the information received during the Third Party Consultation it can be concluded that costs of a ban of PTH as HTF will be higher than costs of a time-limited derogation, considering in particular that in the latter case costs will occur later and assuming a discount rate of 4% as adopted by the Dossier Submitter. More importantly, these costs will be finite.
8. According to comments received during the Third Party Consultation **a time limitation of PTH used in HTF does not seem impossible at all**, even if SEAC's proposal for a time-limited derogation after 20 years after EoF of the restriction was too optimistic considering the lifetime of technical installations. It may be a matter of optimal timing and would, again, require a proper assessment of social costs which the Dossier Submitter just did not provide. Moreover, scientific evidence suggests that the specific design of a policy is crucial to incentivize the behavioral responses by industry leading to an effective reduction of pollution (see, for example, Alberini 2001, Journal of Regulatory Economics Vol. 19, No. 1, p. 55-79). **A time limitation of the derogation can, therefore, be regarded an important instrument to trigger the development of alternatives to PTH used in HTF, which contributes to risk management.** This holds particularly when considering that there is still considerable uncertainty about the action to be taken should a review detect deficiencies of the operational conditions in SCCS. Likewise, appropriate testing methods for implementing the mandatory monitoring program recommended by RAC still need to be developed (see RAC opinion section 3.4.5).