

Environment Agency: Emission to air Environmental Assessments Levels (EALs) update II

Written submission of the Institute of Air Quality Management, June 2023

The [Institute for Air Quality Management](https://www.airqualitymanagement.co.uk/) (IAQM) is a professional body representing ambient and indoor air quality professionals. It has over 650 members and was founded 20 years ago when air quality management responsibilities started in the UK. Membership of the organisation signals that one is an expert in the field of air pollution.

IAQM acts as the voice of air quality in the UK by producing useful and timely guidance on matters affecting air quality professionals and by responding to Government consultations.

Q.1. Which of the listed substances (see table below) for which we are proposing updated EALs do you routinely use to assess the impact of your proposed emissions in support of permit applications?

Substance	Current short-term EAL (1 hour mean) mg/m ³	Current long-term EAL (annual) mg/m ³	Proposed updated short-term (ST) EAL mg/m ³	Proposed updated long-term (LT) EAL mg/m ³
Acrylamide	0.018	0.0006	None Withdraw current EAL	0.00005 (annual) Withdraw current EAL
Butadiene	None	No EAL (UK air quality standard objective in use)	0.00225 (24 hour mean) New value	UK Air Quality Objective No change required
Cadmium	None	No EAL (Target Value already in use)	0.00003 (24 hour mean) New value	EU Target Value No change required
Chromium III	0.15	0.005	None Withdraw current EAL	0.002 (24 hour mean) Withdraw current EAL
Copper	0.2	0.01	None Withdraw current EAL	0.00005 (24-hour mean) Withdraw current EAL
Ethylene oxide	0.000552 ml/m ³	0.0000184	None Withdraw current EAL	0.000002 (annual mean) Withdraw current EAL
Hydrogen chloride	0.75	None	0.75 (1-hour mean) No change required	No change
Hydrogen cyanide	0.22	None	None Withdraw current EAL	0.002 (24-hour mean) New EAL
Mercury	0.0075	0.00025	0.0006 (1-hour mean) Withdraw current EAL	0.00006 (24-hour mean) Withdraw current EAL
Methyl chloride (chloromethane)	21.0	1.05	None Withdraw current EAL	0.018 (24-hour mean) Withdraw current EAL
Methylene chloride (dichloromethane)	3.0	700 µg/m ³	2.1 (24-hour mean) Withdraw current EAL	0.77 (annual mean) Withdraw current EAL
Nickel	None	No EAL (Target Value already in use)	0.0007 (1-hour mean) New value	EU Target Value No change required
Selenium	0.03	0.001	None Withdraw current EAL	0.002 (24-hour mean) Withdraw current EAL

This response reflects the experience of the consultants responding on behalf of IAQM. We have experience of working with the following substances:

- Elements: Cadmium, Chromium, Copper, Mercury, Nickel, Selenium. Selenium is an emerging substance requiring consideration; other elements are relevant to metals processes and waste installations where assessment work has been undertaken;
- Volatile organic compounds: chloromethane and dichloromethane (landfill sites); and,
- Other pollutants: hydrogen chloride (waste processes).

1,3-butadiene is part of the Local Air Quality Management regime but reporting of this substance is a requirement in Scotland and Northern Ireland only.

Q.2. Do you expect the proposed changes to these EALs to affect your operations, and if so, how?

We note that the new EALs for some substances have been substantially tightened – for example, the long term EAL for copper has been reduced by a factor of about 1000, and the EAL for methyl chloride has been reduced by a factor of approximately 100 compared to the previous EALs. This can be expected to have implications for relevant industrial process operators. The IAQM cannot comment on these expected implications, therefore would expect the relevant industrial process operators to advise on the implications for their respective industries.

We note that a number of annual mean EALs have been replaced with 24 hour mean long-term EALs. The Environment Agency should advise or provide guidance on how they expect operators to assess their operations against these updated long term EALs. In general, modelling of short-term peak (e.g., maximum 24 hour mean) concentrations is subject to greater uncertainty than modelling annual mean concentrations. This change has the potential to increase uncertainty in model forecasts.

Q.3. Is a long-term EAL for mercury lower than the current proposal practical for your industry and your business? What level of reduction could be achieved by implementation of best available techniques for emissions abatement?

We note that the new long-term EAL for mercury is reduced by a factor of approximately 10 compared to the previous EAL. This can be expected to have implications for relevant industrial process operators. The most recent Heavy Metals Network data available on the UK-Air resource for mercury are measurements made in 2013. The highest measured annual mean concentration during this year was 0.00045 µg/m³. This indicates that the reduction in long-term EAL from 0.25 to 0.06 µg/m³ is not likely to result in a change in the status of baseline conditions for mercury. However, industrial process operators would need to advise specifically on the implications for their industries.

Q.4. What would be the financial and operational implications for your company from adopting an even lower EAL for mercury, e.g., with regards your production facilities, or the chemical makeup of any of your products?

The IAQM is not able to provide a response in respect of the financial or operational implications - industrial process operators would need to advise specifically on the implications for their industries.

Q.5. We recognise that some of our proposed changes to EALs may result in financial impacts on operators. If relevant, please provide an estimate of the financial costs (and supporting cost data) of the proposed EAL changes on your operations or your sectors operations?

The IAQM is not able to provide a response in respect of the financial implications - industrial process operators would need to advise specifically on the financial implications for their industries.

Q.6. We are planning a third phase of EAL updates in the future. After this, we propose to withdraw any remaining existing EALs that were derived using our old, outdated method. To help us determine which substances to consider in the third phase of our EAL update work, please list any remaining substance EALs from the air emissions risk assessment guidance that are relevant to your permit applications?

Intentionally left blank.

Q.7. We want industry to take a more active role in future EAL development using the updated methodology we have developed. What tools do you require to develop EALs using our methodology?

To enable greater industry involvement, it is likely that the industry will require access to expertise in interpreting toxicological and epidemiological studies to propose EALs. It will also be useful to understand what processes the Environment Agency will adopt to audit/review new EALs proposed by industrial process operators.

Furthermore, challenges currently lie with information gathering from upstream suppliers regarding exposure levels, or mixtures/content of materials such as paints etc. There would need to be increased transparency and availability of data from suppliers to accurately consider developing EALs for new substances contained within materials.

Q.8. Please tell us if you have any further comments on any of the information presented in our consultation and provide as much information as possible to support your answer?

As standards are tightened, and averaging periods change, baseline data requirements become more demanding. We suggest that Environment Agency should consider whether existing baseline data resources such as <https://uk-air.defra.gov.uk/> provide data at

adequate temporal resolution and detection limits to enable robust assessments to be carried out without incurring excessive costs for complex baseline measurement surveys.

It would be helpful to investigate and set out any links between the use of EALs and information developed as part of the REACH process. For example, do REACH dossiers potentially contain information that would be useful for applicants needing to define an EAL for a substance not listed by the Environment Agency?

There is an error in the Toluene short term 1 hour – it currently states 8000, this should be 800.

The WHO Guidelines for Europe contain a 30-minute mean guideline for styrene based on avoiding adverse impacts due to odour. Should this guideline be included as an input to the process of identifying a short-term EAL for styrene?

The presentation of data with regards to units. It should be more user friendly and consistently use $\mu\text{g}/\text{m}^3$ opposed to mg/m^3 . Air Risk Assessment are all presented in $\mu\text{g}/\text{m}^3$.

24-hour mean EALs appear in both the “long term” and “short term” lists of EALs. The status of 24-hour mean EALs should be confirmed as either “long term” or “short term”.