Guidance

Air emissions risk assessment for your environmental permit

How to complete an air emissions risk assessment, including how to calculate the impact of your emissions and the standards you must meet.

From: Environment Agency (/government/organisations/environment-agency) and Department for Environment, Food & Rural Affairs (/government/organisations/department-for-environment-food-rural-affairs)

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Applies to England

Guidance for Northern Ireland (https://www.daera-ni.gov.uk/articles/ippc-guidance-and-application-forms)

Guidance for Scotland (https://www.sepa.org.uk/regulations/air/)

Guidance for Wales (https://naturalresources.wales/permits-and-permissions/?lang=en)

Related content

Environmental permitting: air dispersion modelling reports (/guidance/environmental-permitting-air-dispersion-modelling-reports)

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Before you start this risk assessment

Read the following guides before you start this risk assessment:

- the risk assessment overview (https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit) – this explains the other steps to take in risk assessment and whether you need to do an air emissions risk assessment
- best available techniques (BAT) (https://www.gov.uk/guidance/best-available-techniques-environmental-permits) from the

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Medium combustion plant: apply for an environmental permit (/guidance/medium-combustion-plant-apply-for-an-environmental-permit)

Medium combustion plant and specified generator regulations (/government/collections/medium-combustion-plant-and-specified-generator-regulations)

Assess the impact of air emissions on global warming (/guidance/assess-the-impact-of-air-emissions-on-global-warming)

Specified generator: apply for an environmental permit (/guidance/specified-generator-apply-for-an-environmental-permit)

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Risk assessments for specific activities: environmental permits (/government/collections/risk-assessments-for-specific-activities-environmental-permits)

harmful your emissions could be to the environment

How this risk assessment works

You need to compare the impact of your emissions to air to the following environment standards:

- Air Quality Standards Regulations 2010 Limit Values and Target Values
- UK Air Quality Strategy Objectives
- Environmental Assessment Levels

Find the environmental standards.

Steps to complete this risk assessment

To complete an air emissions risk assessment you need to follow these steps.

1. Calculate the environmental concentration of each substance you release into the air – known as the process contribution (PC).

2. Identify PCs with insignificant environmental impact so that they can be 'screened out' – this means that you do not have to assess them any further.

3. For substances not screened out in step 2, calculate the predicted environmental concentration (PEC) for each substance you release to air – the PEC is the PC plus the concentration of the substance already present in the environment.

4. Identify emissions that have insignificant environmental impact – these can be screened out.

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5 Get ‘detailed modelling’ (also known as detailed assessment or computer modelling) done for the emissions you cannot screen out.

6 For each substance you’ve released to air, compare the PC and PEC with the relevant environmental standard and summarise your results.

7 Check if you need to take further action.

8 Check if you need to do any other risk assessments.

The Environment Agency sometimes refers to the following stages of air emissions risk assessment:

- ‘stage 1’ – this is steps 1 and 2
- ‘stage 2’ – this is steps 3 and 4

Risk assessment tool

You should use the Environment Agency’s risk assessment tool (https://www.gov.uk/government/collections/risk-assessments-for-specific-activities-environmental-permits#H1-software-tool) to complete your risk assessment. The only stage you cannot use it for is to screen out PCs or PECs of substances in protected conservation areas.

The figures the tool gives you are ‘worst case’ estimates. So the figures you get may be higher than if you calculate PCs or PECs using other methods, for example dispersion modelling software (which analyses how air pollutants disperse in the atmosphere).

This guide explains the steps to complete if you’re not using the risk assessment tool.

Calculate PC to air

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You must calculate both your short term and long term PC to air for each substance. PC to air is measured in micrograms per cubic metre.

To calculate the PC to air, multiply the dispersion factor, in micrograms per cubic metre per gram per second, by the release rate, in grams per second.

If you do not have existing data

Use estimates if you do not have existing data (for example if your activity is new).

Where possible, use estimates based on similar operations elsewhere or from trials. Otherwise, use worst-case estimates.

State what assumptions you've made for these estimates.

Grouping air emissions

If you release volatile organic compounds into the air you should provide details of all emissions. If you cannot identify what all the substances in them are, treat the unknowns as 100% benzene in your risk assessment. If you want to treat them as something else, you'll need to explain why.

Oxides of nitrogen

Emissions of oxides of nitrogen should be recorded as nitrogen dioxide in your risk assessment (as nitrogen oxide converts to nitrogen dioxide over time):

- for short term PCs and PECs, assume only 50% of emissions of oxides of nitrogen convert to nitrogen dioxide in the environment
- for long term PCs and PECs, assume 100% of emissions of oxides of nitrogen convert to nitrogen dioxide

When your site does not operate all the time

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Adjust your figures down, based on the percentage of the year that your site is not operating. For example, a site that only operates January to June should reduce its PC figures by 50%. This only applies to annual average calculations and not short term assessments.

When using the risk assessment tool, you can enter the percentage into ‘operating mode’ and it will do the calculation for you.

PC: dispersion factor

The risk assessment tool calculates intermediate dispersion factors where the effective height is between given values.

If you’re not using the tool, this table shows the dispersion factors you can use. These factors are based on the point at which the substance is effectively released into the air. This is known as the ‘effective height of release’.

> You must use different dispersion factors if your site has landfill gas engines, landfill gas flares or capped areas.

All dispersion factors are shown in micrograms per cubic metre per gram per second.

Effective height of release in metres	Annual dispersion factor	Monthly dispersion factor	Hourly dispersion factor
0	148	529	3900
10	32	33.7	580
20	4.6	6.2	161
30	1.7	2.3	77

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Effective height of release in metres	Annual dispersion factor	Monthly dispersion factor	Hourly dispersion factor
70	0.24	0.31	16
100	0.11	0.13	8.6
150	0.048	0.052	4
200	0.023	0.026	2.3

Effective height of release: impact of nearby buildings

Treat the effective height of release as 0 metres when the emission is actually released at a point that's either:

- less than 3 metres above the ground or building on which the stack is located
- more than 3 metres above the ground or the building, but less than the height of the tallest building within a distance that's 5 times 'L'

'L' is the lowest of either:

- the height of the building
- the greatest width between 2 points at the same height of the building (for example between 2 opposing corners of a roof)

When the effective height of release is more than 3 metres above the ground or building, but less than 2.5 times the building's height, estimate it by following these steps.

1. Take the actual height of release.
2. Subtract the height of the tallest building within a distance 5 times L (this can be the building where the emissions are coming from, if it's the tallest).
3. Multiply the figure that's left by 1.66.

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When the actual stack height is more than 2.5 times the building height, the actual stack height can be treated as the effective height of release.

Dispersion factor: landfill gas engines, flares or capped areas

Dispersion factors for landfill gas engines, flares or capped areas are based on the shortest distance from the gas engine to whichever of these is nearest:

- the site boundary
- the nearest sensitive receptor

You can download the following dispersion factors, shown in micrograms per cubic metre per gram per second.

- Landfill gas engines: hourly dispersion factors (https://assets.publishing.service.gov.uk/media/5a80457240f0b6230269286e/landfill_gas_engines_hourly_dispersion_factors.csv) (MS Excel Spreadsheet, 901 Bytes)
- Landfill gas engines: annual dispersion factors (https://assets.publishing.service.gov.uk/media/5a808335ed915d74e33fadb8/landfill_gas_engines_annual_dispersion_factors.csv) (MS Excel Spreadsheet, 863 Bytes)
- Landfill gas flares: hourly dispersion factors (https://assets.publishing.service.gov.uk/media/5a7f7f00e5274a2e87db633b/Landfill_gas_flares_hourly_dispersion_factors.csv) (MS Excel Spreadsheet, 737 Bytes)
- Landfill gas flares: annual dispersion factors (https://assets.publishing.service.gov.uk/media/5a80e37940f0b62305b8db68/landfill_gas_flares_annual_dispersion_factors.csv) (MS Excel Spreadsheet, 730 Bytes)
- Landfill capped areas: hourly and annual dispersion factors (https://assets.publishing.service.gov.uk/media/5a80401eed915d74e33f9559/landfill_capped_areas_hourly_and_annual_dispersion_factors.csv) (MS Excel Spreadsheet, 476 Bytes)

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PC: release rate

Calculate the release rate by taking the substance's actual gas flow in cubic metres per second.

Multiply this number by the substance's concentration (in milligrams per cubic metre) divided by 1000.

When a substance is released from more than one point (for example from several chimneys from a factory), you must add up the substance's PC from each source (for example a chimney) to get the total PC for the substance. The risk assessment tool will do this calculation for you.

You should also describe:

- how the concentration of an emission varies over the time of day or year
- if you're generating power, the energy demand when a release happens, for example whether it's average demand or peak demand

Calculating averaging periods

You should use the same averaging period when you compare the impact of your emissions against long term environmental standards.

Most long term standards are expressed as an annual average (mean). Most short term standards as an hourly average (mean). But sometimes the short term environmental standard is measured using a different time period (for example, 15 minutes or 24 hours). So, if you've calculated a PC on an hourly basis, you must multiply it by:

- 1.34 to convert it into a 15 minute average
- 1.3 to convert it into a 30 minute average
- 0.7 to convert it into an 8 hour average
- 0.59 to convert it to a 24 hour average

> For sulphur dioxide, the 'short term' periods are

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minute dispersion factor. Multiply the hourly dispersion factor by 0.59 to get the 24 hour average.

Calculate PC for substance deposition

The following substances require you to calculate the impact they have when absorbed by soil and leaves (known as ‘deposition’):

- arsenic
- cadmium
- chromium
- copper
- fluoride
- lead
- mercury
- molybdenum
- nickel
- selenium
- zinc

The impact on the soil is known as ‘PC to ground’. You calculate this as follows.

1. Do this calculation: long term PC to air × release rate × 0.01 × 3 × 86,400.
2. Divide the number you get by 1,000.

The number you’re left with is the PC to ground, in milligrams per square metre per day.

Screen out insignificant PCs

To screen out a PC for any substance so that you do not need to do any further assessment of it, the PC must meet both of the following criteria:

- the short term PC is less than 10% of the short term environmental standard
- the long term PC is less than 1% of the long term

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If you meet both of these criteria you do not need to do any further assessment of the substance.

If you do not meet them you need to carry out a second stage of screening to determine the impact of the PEC. Record the PCs for your insignificant emissions in your risk assessment.

Assess insignificant PCs to ground

The following are PC to ground limits in milligrams per square metre per day:

- arsenic – 0.02
- cadmium – 0.009
- chromium – 1.5
- copper – 0.25
- fluoride – 2.1
- lead – 1.1
- mercury – 0.004
- molybdenum – 0.016
- nickel – 0.11
- selenium – 0.012
- zinc – 0.48

If the PC to ground for any of these substances is below 1% of the limit it's insignificant.

If the PC to ground is 1% of the limit or greater, you may need to do further assessment such as detailed modelling. You should contact the Environment Agency if you think you may need to do further assessment.

Calculate PEC

You must calculate the short and long term PECs of PCs to air that were not screened out in the first stage.

To calculate the short and long term PECs of PCs to air, combine the following:

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- the concentration of the substance that's already present in the environment - the 'background concentration'

Record these figures in your risk assessment.

You can find out about background concentrations from:

- your local council
- background concentration maps (https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html) from the government
- the Air Pollution Information System (APIS) (http://www.apis.ac.uk) (for SPAs, SACs and SSSIs)

This information will usually be shown as a long term (annual) average concentration.

Background concentrations may already include PCs from your site. To avoid your PCs being double-counted, use a background concentration from a source that is not affected by the direction that the wind predominantly blows from (that is the prevailing wind direction). For example, if the prevailing wind comes from the west, do not use a background concentration from a source to your east.

> When you calculate background concentration, you can assume that the short term background concentration of a substance is twice its long term concentration.

Screen out PECs from detailed modelling

In the second stage of screening if you meet both of the following requirements you do not need to do any further assessment of that substance. You'll need to do detailed modelling of emissions that do not meet both of the following requirements:

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- the short term PC is less than 20% of the short term environmental standards minus twice the long term background concentration
- the long term PEC is less than 70% of the long term environmental standards

Screening for protected conservation areas

You must consider the impact of your site on protected conservation areas. Complete the nature and heritage conservation screening form (https://www.gov.uk/guidance/get-advice-before-you-apply-for-an-environmental-permit) to find out if any are near your site.

The screening process for protected conservation areas is limited to the emissions and emission periods in these environmental standards for protected conservation areas.

Substance	Environmental standard	Avera time
Ammonia	1 microgram per cubic metre where lichens or bryophytes (including mosses, liverworts and hornwarts) are present, 3 micrograms per cubic metre where they're not present	Annua mean
Hydrogen fluroride	0.5 micrograms per cubic metre	Weekl mean
Hydrogen fluroride	5 micrograms per cubic metre	Daily mean
Oxides of nitrogen (expressed as nitrogen dioxide)	30 micrograms per cubic metre	Annua mean

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Substance	Environmental standard	Avera time
Oxides of nitrogen (expressed as nitrogen dioxide)	75 micrograms per cubic metre, 200 micrograms per cubic meter but only for detailed assessments where the ozone is below the AOT40 critical level and sulphur dioxide is below the lower critical level of 10 micrograms per cubic metre	Daily mean
Ozone (used for detailed daily oxides of nitrogen assessment)	AOT40 of 6000 microgram per cubic metre calculated from accumulated hourly ozone concentrations – AOT40 means the sum of the difference between each hourly daytime (08:00 to 20:00 Central European Time) ozone concentration greater than 80 micrograms per cubic metre (40 parts per billion) and 80 micrograms per cubic metre, for the period between 01 May and 31 July	Period betwe May a July
Sulphur dioxide	10 micrograms per cubic metre where lichens or bryophytes are present, 20 micrograms per cubic metre where they're not present	Annua mean
Acidity deposition	Depends on location – use APIS (http://www.apis.ac.uk/search-pollutant-impacts) to check it	Annua mean
Nutrient nitrogen deposition	Depends on location – use APIS (http://www.apis.ac.uk/search-	Annua mean

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Check if there are any of the following within 10km of your site:

- special protection areas (SPAs)
- special areas of conservation (SACs)
- Ramsar sites (protected wetlands)

Check if there are any of the following within 2km of your site:

- sites of special scientific interest (SSSIs)
- local nature sites (ancient woods, local wildlife sites and national and local nature reserves)

For some larger (greater than 50 megawatt) emitters may be required to use increasing screening distances of:

- 15km for SACs, SPAs and Ramsar sites
- 10km or 15km for SSSIs

You should increase the screening distance for air emissions on protected conservation areas to 15km for the following:

- natural gas (or fuels with a similarly low sulphur content) fired combustion plants, with more than 500 megawatt thermal input
- larger combustion plants using more sulphurous fuels with more than 50 megawatt thermal input

You should check the relevant screening distances at the pre-application stage.

When there are SPAs, SACs, Ramsar sites and SSSIs within the specified distance

If your emissions that affect SPAs, SACs, Ramsar sites or SSSIs meet both of the following criteria, they're insignificant - you do not need to assess them any further:

- the short term PC is less than 10% of the short term environmental standard for protected conservation areas

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conservation areas

If you do not meet these requirements you need to calculate the PEC and check the PEC against the standard for protected conservation areas.

You do not need to calculate PEC for short term targets.

If your short term PC exceeds the screening criteria of 10%, you need to do detailed modelling.

If your long term PC is greater than 1% and your PEC is less than 70% of the long term environmental standard, the emissions are insignificant – you do not need to assess them any further.

If your PEC is greater than 70% of the long term environmental standard, you need to do detailed modelling.

For SPAs, SACs and Ramsar sites, you need to consider the 'in combination' (combined) impact of all permissions, plans or projects that affect the site. Contact the Environment Agency for further guidance on in-combination assessments.

When there are local nature sites within the specified distance

If your emissions meet both of the following criteria they're insignificant – you do not need to assess them any further:

- the short term PC is less than 100% of the short term environmental standard for protected conservation areas
- the long term PC is less than 100% of the long term environmental standard for protected conservation areas

You do not need to calculate PEC for local nature sites. If your PC exceeds the screening criteria you need to do detailed modelling.

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nutrient nitrogen or acidity. This is because nutrient nitrogen and acidity targets vary depending on location. The APIS site-relevant critical load tool will tell you the standard that you need to compare the PC or PEC against.

Record the PCs and PECs and the nitrogen and acidity critical load values you used for your insignificant emissions in your risk assessment.

There are different rules about what's insignificant in air emissions from intensive farming (https://www.gov.uk/guidance/intensive-farming-risk-assessment-for-your-environmental-permit).

Contact the Environment Agency for more information about modelling and screening for protected conservation areas.

Detailed modelling

You must do detailed modelling for any PECs not screened out as insignificant.

To do detailed modelling, you need to use computer software that models the passage of a substance as it travels through the atmosphere until it reaches the ground.

Detailed modelling requires specialist knowledge. You can find a consultant (https://www.endsdirectory.com) to do it for you. They'll charge for their services. Contact the Environment Agency if you want to do your own detailed modelling.

For information on detailed modelling for environmental permitting applications see Environmental permitting: air dispersion modelling reports (https://www.gov.uk/guidance/environmental-permitting-air-dispersion-modelling-reports).

Air Quality Management Areas

Unless your process contribution (PC) is insignificant, you must have detailed modelling

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- your emissions affect an Air Quality Management Area (AQMA)
- restrictions apply for any substance you emit in this area

Check if your site is in an AQMA (https://uk-air.defra.gov.uk/aqma).

More accurate data

You can have detailed modelling done if you've used the risk assessment tool to do your risk assessment but you want to provide data that's:

- more accurate – the tool does not include the plume rise (a factor that affects the effective height of release) of your emissions in its calculations
- less pessimistic – for example if you want to show that your emissions are a lower risk than the risk assessment tool's estimates

Varying emission rates

The risk assessment tool assumes a constant emission rate for each substance over a year. You may need to do detailed modelling if your site's output varies a lot, for example the output from a chemical factory or a power station can vary a lot from day to day. Check with the Environment Agency if you're not sure.

Compare and summarise your results

In your application you need to include all of the following:

- the PC
- the PEC
- the substances you've screened out
- the substances that have had a detailed assessment

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- any additional action that you think you need to take, for example a cost benefit analysis

Check if you need to take further action

Your pre-application discussions with the Environment Agency may have already shown that you need to take further action, such as a cost benefit analysis of your proposals.

Your risk assessment may also show that you need to take further action.

When you do not need to take further action

You do not need to take further action if your assessment has shown that both of the following apply:

- your proposed emissions comply with BAT associated emission levels (AELs) (https://www.gov.uk/guidance/best-available-techniques-environmental-permits) or the equivalent requirements where there is no BAT AEL
- the resulting PECs will not exceed environmental standards

When you need to take further action

You'll need to do a cost benefit analysis if any of the following apply:

- your PCs could cause a PEC to exceed an environmental standard (unless the PC is very small compared to other contributors – if you think this is the case contact the Environment Agency)
- the PEC is already exceeding an environmental standard
- your activity or part of it is not covered by a 'BAT reference document' (BREF)
- your proposals do not comply with BAT AELs - in this case you'll need to make a request for an

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- you've been asked to do a BAT assessment

When you need to contact the Environment Agency

In all other cases or if you're not sure whether you need to take further action, contact the Environment Agency.

Cost benefit analysis tool

The Environment Agency has produced a cost benefit analysis tool to help you. Contact the Environment Agency for this tool.

Check if you need to do other risk assessments

You'll need to check if you need to do any other risk assessments (https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit#risks-from-your-specific-activity)

Once you've done all the required risk assessments, submit them with your permit application. You can also use the risk assessment tool to submit this risk assessment.

Environmental standards for air emissions

Compare the impact of your air emissions against the following environmental standards when you do your air emissions risk assessment.

Air Quality Standards Regulations 2010 Limit Values

The Environment Agency must make sure your proposals do not exceed the Air Quality Standards Regulations 2010 Limit Values. You should check if you need to take further action if either:

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- a Limit Value could be exceeded by your proposed activity

Substance	Averaging time	Concentration	Envir stand
Benzene	Annual mean	5 micrograms per cubic metre	Limit '
Carbon monoxide	Maximum 8 hour running mean in any daily period	10 milligrams per cubic metre	Limit '
Lead	Annual mean	0.5 micrograms per cubic metre	Limit '
Nitrogen dioxide	1 hour mean	200 micrograms per cubic metre	Limit '
Nitrogen dioxide	Annual mean	40 micrograms per cubic metre	Limit '
Particulates (PM10)	24 hour mean	50 micrograms per cubic metre	Limit '
Particulates (PM10)	Annual mean	40 micrograms per cubic metre	Limit '
Particulates (PM2.5)	Annual	20 micrograms per cubic metre	Limit '

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Substance	Averaging time	Concentration	Envir stand
Sulphur dioxide	1 hour mean	350 micrograms per cubic metre	Limit '
Sulphur dioxide	24 hour mean	125 micrograms per cubic metre	Limit '

Air Quality Standards Regulations 2010 Target Values and UK Air Quality Strategy Objectives

Under the law, you will not usually have to go further than BAT (https://www.gov.uk/guidance/best-available-techniques-environmental-permits) to comply with either of the following for PC emissions:

- Air Quality Standards Regulations 2010 Target Values
- UK Air Quality Strategy (AQS) Objectives

As substances covered by these standards could still damage the environment, the Environment Agency may decide that you need to take further action if your emissions of a substance will be significant in relation to these standards.

The Environment Agency will decide this on a case by case basis. It will then let you know if you need to take further action, for example carrying out a cost benefit analysis.

Where a substance has both a Target Value and a UK AQS Objective over the same averaging time with different concentrations, you must use the lower concentration.

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Substance	Averaging time	Concentration
1,3-butadiene	Running annual mean	2.25 micrograms per cubic metre
Arsenic	Annual mean	6 nanograms per cubic metre
Cadmium	Annual mean	5 nanograms per cubic metre
Lead	Annual mean	0.25 micrograms per cubic metre
Nickel	Annual mean	20 nanograms per cubic metre
Ozone	Running 8 hour mean	120 micrograms per cubic metre
Ozone	Running 8 hour mean	100 micrograms per cubic metre
Polyaromatic hydrocarbons (benzo(a)pyrene)	Annual mean	1 nanogram per cubic metre
Polyaromatic hydrocarbons	Annual mean	0.25 nanogram per cubic

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Substance	Averaging time	Concentration
Sulphur dioxide	15 minute mean	266 micrograms per cubic metre

Environmental Assessment Levels

If you exceed these assessment levels, you might need to take further action to reduce your impact on the environment. The Environment Agency will tell you what you need to do.

‘Further action’ might include doing a cost benefit analysis of alternative waste recovery and disposal methods, or installing new equipment, like an abatement plant.

Where an environmental standard or environmental assessment level (EAL) is not listed for a substance you are assessing you can propose a new EAL.

To derive a new EAL, you should use the Environment Agency hazard characterisation method for determining tolerable concentrations in air (TCAs) within section 7 and annex 5 of our 2012 consultation document Derivation of new environmental assessment levels to air (https://www.gov.uk/government/consultations/derivation-of-new-environmental-assessment-levels-to-air). You need to select the option appropriate for the substance and whether the critical effect has a threshold or has no threshold.

We may need to do a further review and consult on your proposals. Therefore, you need to submit your proposal with a sufficiently detailed explanation to

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evidence for MEA and NDMA (https://www.gov.uk/government/consultations/environmental-assessment-levels-eals-used-in-air-emissions-risk-assessments/public-feedback/appendix-c-summary-of-toxicological-evidence-for-mea-and-ndma) of our 2021 Consultation response document: new EALs for emissions to air (https://www.gov.uk/government/consultations/environmental-assessment-levels-eals-used-in-air-emissions-risk-assessments/public-feedback/consultation-response-document-new-eals-for-emissions-to-air).

> We have updated EALs for acrylamide, butadiene, cadmium, chromium III, copper, mercury, methyl chloride (chloromethane), methylene chloride (dichloromethane), nickel and selenium following our consultation Review of environmental assessment levels (EALs) for emissions to air: second phase (https://www.gov.uk/government/consultations/review-of-environmental-assessment-levels-eals-for-emissions-to-air-second-phase).

Substance	Averaging time	Concentrati microgra per cu me
Acetaldehyde	1 hour mean	9,2
Acetaldehyde	Annual mean	3
Acetic acid	1 hour mean	3,7

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Substance	Averaging time	Concentrati microgra per cu me
Acetic acid	Annual mean	2
Acetic anhydride	1 hour mean	
Acetic anhydride	Annual mean	
Acetone	1 hour mean	362,0
Acetone	Annual mean	18,1
Acetonitrile	1 hour mean	10,2
Acetonitrile	Annual	6

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Substance	Averaging time	Concentrati microgra per cu me
Acrylamide	Annual mean	0.
Acrylic acid	1 hour mean	6,0
Acrylic acid	Annual mean	3
Acrylonitrile	1 hour mean	2
Acrylonitrile	Annual mean	8
Allyl alcohol	1 hour mean	9
Allyl alcohol	Annual	

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Substance	Averaging time	Concentrati microgra per cu me
Ammonia	1 hour mean	2,5
Ammonia	Annual mean	1
Aniline	1 hour mean	2
Aniline	Annual mean	
Antimony and compounds (as antimony) except antimony trisulphide and antimony trioxide	1 hour mean	1
Antimony and compounds (as antimony) except antimony trisulphide and antimony trioxide	Annual mean	
Arsine	1 hour	

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Substance	Averaging time	Concentrati microgra per cu me
Arsine	Annual mean	
Benzene	24 hour mean	
Benzylchloride	1 hour mean	1
Benzylchloride	Annual mean	
Beryllium (total in the PM10 fraction)	Annual mean	0.00
Boron trifluoride	1 hour mean	2
Bromine	1 hour mean	

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Substance	Averaging time	Concentrati microgra per cu me
Bromomethane	1 hour mean	5,9
Bromomethane	Annual mean	2
1, 3 butadiene	24 hour mean (short term)	2.
Butane	1 hour mean	181,0
Butane	Annual mean	14,5
Cadmium	24 hour mean (short term)	0.
Carbon disulphide	24 hour mean	1

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Substance	Averaging time	Concentrati microgra per cu me
Carbon disulphide	Annual mean	
Carbon monoxide	1 hour mean	30,0
Carbon tetrachloride	1 hour mean	3,9
Carbon tetrachloride	Annual mean	1
Chlorine	1 hour mean	2
Chloroform	24 hour mean	1
Chromium (III) and its compounds (as chromium)	24 hour mean (long term)	2

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Substance	Averaging time	Concentrati microgra per cu me
Chromium VI	Annual mean	0.000
Copper and its compounds (as copper)	24 hour mean (long term)	0.
Dibutyl phthalate	1 hour mean	1,0
Dibutyl phthalate	Annual mean	
Diethyl ether	1 hour mean	154,0
Diethyl ether	Annual mean	12,3
Diethyl ketone	1 hour mean	89,5

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Substance	Averaging time	Concentrati microgra per cu me
Diethyl ketone	Annual mean	7,1
Diisobutyl phthalate	1 hour mean	1,5
Diisobutyl phthalate	Annual mean	
Diisopropyl ether	1 hour mean	131,0
Diisopropyl ether	Annual mean	10,6
Dimethyl sulphate	1 hour mean	1
Dimethyl sulphate	Annual mean	0.

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Dimethylformamide	1 hour mean	6,1
Dimethylformamide	Annual mean	3
Dioxane	1 hour mean	36,6
Dioxane	Annual mean	9
Ethyl acrylate	1 hour mean	6,2
Ethyl acrylate	Annual mean	2
Ethylbenzene	1 hour mean	55,2

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Ethylbenzene	Annual mean	4,4
Ethylene dibromide	1 hour mean	2
Ethylene dibromide	Annual mean	7
Ethylene dichloride	Annual mean	
Ethylene oxide	Annual mean	0.0
Formaldehyde	30 minute mean	1
Formaldehyde	Annual mean	

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Hydrazine	1 hour mean	2
Hydrazine	Annual mean	0.
Hydrogen bromide	1 hour mean	7
Hydrogen chloride	1 hour mean	7
Hydrogen cyanide	24 hour mean (long term)	2
Hydrogen fluoride	1 hour mean	1
Hydrogen fluoride	Monthly mean	

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Hydrogen iodide	Monthly mean	
Hydrogen sulphide	24 hour mean	1
Hydrogen sulphide	Annual mean	1
Manganese and compounds (as manganese)	1 hour mean	1,5
Manganese and compounds (as manganese)	Annual mean	0.
Mercury and its inorganic compounds (as mercury)	1 hour mean	(

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Mercury and its inorganic compounds (as mercury)	24 hour mean	0.
Methanol	1 hour mean	33,3
Methanol	Annual mean	2,6
Methyl chloride (chloromethane)	24 hour mean (long term)	
Methyl chloroform	24 hour mean	5,0
Methyl ethyl ketone	1 hour mean	89,9
Methyl ethyl ketone	Annual mean	6,0

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Methyl propyl ketone	1 hour mean	89,5
Methyl propyl ketone	Annual mean	7,1
Methylene chloride (dichloromethane)	24 hour mean (short term)	2,1
Methylene chloride (dichloromethane)	Annual mean	7
Mono-ethanolamine (MEA)	1 hour mean	4
Mono-ethanolamine (MEA)	24 hour mean	1
Naphthalene	24 hour mean	

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
N-hexane	1 hour mean	21,6
N-hexane	Annual mean	7
Nickel and its compounds, except nickel hydride (as nickel)	1 hour mean	(
Nitric acid	1 hour mean	1,0
Nitric acid	Annual mean	
Nitrogen monoxide	1 hour mean	4,4
Nitrogen monoxide	Annual mean	3

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
N-nitrosodimethylamine (NDMA)	Annual mean	0.00
Orthophosphoric acid	1 hour mean	2
Para-dichlorobenzene	1 hour mean	30,6
Para-dichlorobenzene	Annual mean	1,5
Phenol	1 hour mean	3,9
Phenol	Annual mean	2
Phosgene	1 hour mean	

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Phosgene	Annual mean	(
Phosphine	1 hour mean	
Polychlorinated biphenyls (PCBs)	1 hour mean	
Polychlorinated biphenyls (PCBs)	Annual mean	(
1-propanol	1 hour mean	62,5
1-propanol	Annual mean	5,0
2-propanol	1 hour mean	125,0

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
2-propanol	Annual mean	9,9
Propylene oxide	1 hour mean	7
Propylene oxide	Annual mean	
Selenium and compounds, except hydrogen selenide (as selenium)	24 hour mean (long term)	2
Sodium hydroxide	1 hour mean	2
Styrene	1 hour mean	8
Styrene	1 week (long term)	2

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Sulphur hexafluoride	1 hour mean	759,0
Sulphur hexafluoride	Annual mean	60,7
Sulphuric acid	1 hour mean	3
Sulphuric acid	Annual mean	
Tetrachloroethylene	24 hour mean	
Tetrahydrofuran	1 hour mean	59,9
Tetrahydrofuran	Annual mean	3,0

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Toluene	1 hour mean	8,0
Toluene	1 week (long term)	2
1,2,4-trichlorobenzene	1 hour mean	2,2
1,2,4-trichlorobenzene	Annual mean	
Trichloroethylene	Annual mean	
Trimethylbenzenes, all isomers or mixture	1 hour mean	37,5
Trimethylbenzenes, all isomers or mixture	Annual mean	1,2

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Vanadium	24 hour mean	
Vinyl acetate	1 hour mean	7,2
Vinyl acetate	Annual mean	3
Vinyl chloride	24 hour mean	1,3
Vinyl chloride	Annual mean	
Xylene (o-, m-, p- or mixed isomers)	1 hour mean	66,2
Xylene (o-, m-, p- or mixed isomers)	Annual mean	4,4

↑ Contents

Substance	Averaging time	Concentrati microgra per cu me
Zinc oxide	1 hour mean	1,0
Zinc oxide	Annual mean	

Contact

Contact the Environment Agency for more information about your air emissions risk assessment.

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