

| Information topic | Details |
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| Indicator name | Sulphur dioxide concentrations |
| Domain and topic | Air quality – Other air pollutants: sulphur dioxide |
| Indicator definition and units | <ol style="list-style-type: none"> Hourly average concentrations of sulphur dioxide (SO₂) that exceeded lower (350µg/m³) and upper (570µg/m³) NESAQ limits 24-hour average concentrations of SO₂ that exceeded 2021 WHO guidance (40µg/m³). |
| Data source | Ministry for the Environment and Stats NZ. Our Air (annual reports) |
| Numerator | Number of sites exceeding guidance values or national standards. |
| Denominator | Nil |
| Methodology | <p>Daily average calculation Raw data is received in the form of hourly measurements, and annual average values are calculated using these as a base. Daily Average values are determined based on the average of the hourly recordings for a given day – only if sufficient data for that day is available.</p> <p>Data validity check: In the calculations of daily average values, a check to make sure the data meets the 75% completion requirement (Ministry for the Environment and Stats NZ. 2021) is made.</p> <ul style="list-style-type: none"> A day must have at least 18 hours of data to be ‘complete’. A year must have at least 6,570 hours of data (6588 hours in the case of leap years) to be ‘complete’. This is equivalent to 274 complete days (275 in leap years) Numbers of exceedances are not calculated or reported for incomplete days & years. |
| Time period and time scale | Annual, from 2005 onwards |
| Population coverage | Nil |
| Spatial Coverage | All sites with valid data that were reported by the Ministry for the Environment and Stats NZ. Validity of data is discussed in the ‘methodology’ section above |
| Measures of frequency | Number of exceedances of the relevant air quality limit/guideline value per year |
| Limitations of indicator | The population coverage of the monitoring site is unknown, meaning a national representative average cannot be applied. |

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| Limitations of data source | <ul style="list-style-type: none"> • Monitoring information is only reported if the site achieves greater than 75% valid data collection and data were present for at least three consecutive years. • Monitoring site data is only applicable to a small area around the site – a single station is not representative of a whole city, let alone an entire region • The small (<10) number of sites further reduces the spatial coverage of the data • Much of the monitoring occurs at peak sites (sites expected to have high concentrations e.g. close to high-volume SO₂ emitters in industrial areas). These sites may, therefore, not be representative of the surrounding area. |
| Related indicators | <ul style="list-style-type: none"> • Monitoring sites exceeding the national environmental standard (one-hour average) for nitrogen dioxide • Monitoring sites exceeding the 2021 WHO guidance (daily and annual averages) for nitrogen dioxide • Carbon monoxide 8-hour maximum levels at monitored sites |
| For more information | Ministry for the Environment and Stats NZ. Environmental reporting on air. URL: https://environment.govt.nz/facts-and-science/air/ |
| References | Ministry for the Environment and Stats NZ. 2021. Our Air 2021. Wellington: Ministry for the Environment. |