

## *Nitrogen Dioxide (NO<sub>2</sub>)*

Nitrogen dioxide is a reddish-orange-brown gas with an irritating, pungent odour. Nitrogen dioxide is corrosive, highly oxidizing, and non-combustible. Nitrogen dioxide occurs naturally in the environment as a result of forest fires, atmospheric lightning discharges, and biodegradation of nitrogen containing compounds. Anthropogenic sources of NO<sub>2</sub> are mainly from combustion processes, such as vehicles emissions, coal combustion, and industrial processes.

Acute exposure to NO<sub>2</sub> of 2 ppm or lower can cause airway inflammation and alterations in lymphocytes appearance in healthy individuals; individuals with asthma have a greater sensitivity to acute exposures. Pre-exposure to NO<sub>2</sub> can increase the responsiveness of mildly asthmatic individuals to inhaled allergens.

The effects on vegetation are dependent on a number of factors, for example sensitivity of the species, duration and concentration of the exposure, and stage of growth when exposed. Some of the effects that have been observed include: increase in shoot to root ratio, which results in drought susceptibility; decreased growth; increased shoot nitrogen, which leads to increased susceptibility to pathogen and insect attack; and advanced bud-break, which could lead to frost damage.

The current AAAQO for nitrogen dioxide are:

- 1-hour average AAAQO = 159 ppb; and
- annual average AAAQO = 24 ppb.