

## Air Quality Standards and Air Pollution Level

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Korea has set air quality standards for key air pollutants as policy objectives on air quality control and has been making efforts to satisfy these standards. Air quality standards on sulfur dioxide gas (SO<sub>2</sub>) were first introduced in February 1978, followed by standards on carbon monoxide, nitrogen dioxide, total suspended particles (TSP), ozone, and hydrocarbons in 1983, standards on lead in 1991, and standards on PM<sub>10</sub> fine particles in 1995. Standards on benzene were newly introduced in 2010. Additional standards on PM<sub>2.5</sub> fine particles were enacted in March 2011 and will be applicable from 2015. Environmental standards have been progressively tightened for sulfur dioxide gas in 1995 and 2001, carbon monoxide in 1995, PM<sub>10</sub> fine particles in 2001 and 2007, and nitrogen dioxide in 2007 to pursue higher air quality goals. The current air quality standards that have been applicable since 2011 are as presented in <Table 2-5>.

<Figure 2-1> shows the trend in national air pollution level over the past 15 years. Concentrations of SO<sub>2</sub>, PM<sub>10</sub>, and Pb are continuously decreasing, and this appears to be the outcome of the government's air quality management policies, including improvement of Seoul Metropolitan air quality (November 2005), increased supply of clean fuels such as low sulfur oil and LNG, supply of lead-free gasoline, and tighter emissions regulations. On the other hand, NO<sub>2</sub> and O<sub>3</sub> concentrations are yet to improve due to rising temperatures caused by climate change and increased number of vehicle registrations.

In terms of the national average air pollution level in 2013, the SO<sub>2</sub> concentration is 0.006ppm and has been maintained at less than one-third of the air quality standard of 0.02ppm for more than 10 years. At 0.024ppm, NO<sub>2</sub> has also been kept below the air quality standard of 0.03ppm strengthened in 2007. The atmospheric lead (Pb) concentration is 0.0391μg/m<sup>3</sup> (based on PM<sub>10</sub><sup>3</sup>), which is only one-tenth of the air quality standard of

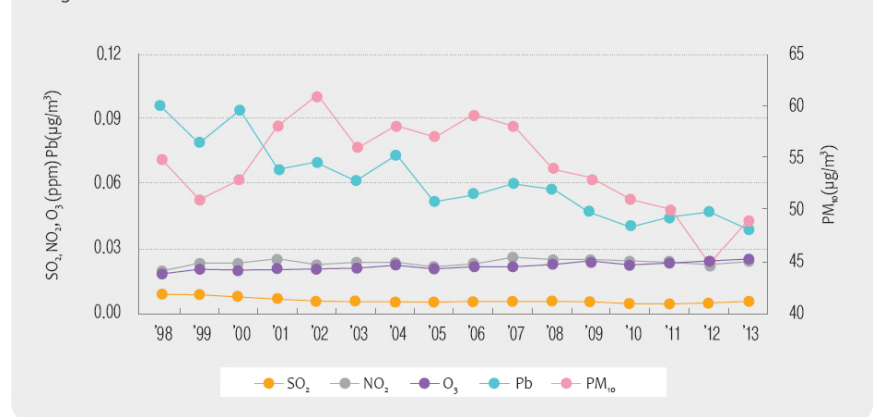
0.5µg/m<sup>3</sup>. However, PM<sub>10</sub>, at 49µg/m<sup>3</sup>, is only barely below the air quality standard of 50µg/m<sup>3</sup>.

3) Based on PM10. Lead concentration was measured based on TSP until 2012, but PM10 standards are applied as of 2013.

<Table 2-5> Air Quality Standards

Item		Standard
Sulfur dioxide gas (SO <sub>2</sub> )		<ul style="list-style-type: none"> <li>◦ Annual average of not more than 0.02ppm</li> <li>◦ 24-hour average of not more than 0.05ppm</li> <li>◦ Hourly average of not more than 0.15ppm</li> </ul>
Carbon monoxide (CO)		<ul style="list-style-type: none"> <li>◦ 8-hour average of not more than 9ppm</li> <li>◦ Hourly average of not more than 25ppm</li> </ul>
Nitrogen dioxide (NO <sub>2</sub> )		<ul style="list-style-type: none"> <li>◦ Annual average of not more than 0.03ppm</li> <li>◦ 24-hour average of not more than 0.06ppm</li> <li>◦ Hourly average of not more than 0.1ppm</li> </ul>
Fine particles	PM <sub>10</sub>	<ul style="list-style-type: none"> <li>◦ Annual average of not more than 50µg/m<sup>3</sup></li> <li>◦ 24-hour average of not more than 100µg/m<sup>3</sup></li> </ul>
	PM <sub>2.5</sub>	<ul style="list-style-type: none"> <li>◦ Annual average of not more than 25µg/m<sup>3</sup></li> <li>◦ 24-hour average of not more than 50µg/m<sup>3</sup> (applicable from 2015)</li> </ul>
Ozone (O <sub>3</sub> )		<ul style="list-style-type: none"> <li>◦ 8-hour average of not more than 0.06ppm</li> <li>◦ Hourly average of not more than 0.1ppm</li> </ul>
Lead (Pb)		<ul style="list-style-type: none"> <li>◦ Annual average of not more than 0.5µg/m<sup>3</sup></li> </ul>
Benzene		<ul style="list-style-type: none"> <li>◦ Annual average of not more than 5µg/m<sup>3</sup></li> </ul>

Fig. 2-1 National Air Pollution Level Trend



Note : Pb concentration is based on TSP until 2012 and based on PM10 from 2013

