ISB International School Bangkok

AIR QUALITY MANAGEMENT GUIDELINES

Updated 27/JAN/2025 | MRH-RM

ISB

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PURPOSE

The care and welfare of all ISB students, faculty, and staff is our highest priority. These guidelines have been developed to provide clear action points when the local air pollution levels increase.

BACKGROUND

Pollutant Related Health Concerns

Air pollution is a growing concern worldwide. Research indicates that exposure to air pollution can impact health. Studies on long-term health effects typically focus on individuals who are exposed to unhealthy air for an extended period, often many years. However, evidence also indicates that short term exposure can create health concerns, particularly for children, the elderly, and people with compromised immune systems. Young children are at increased risk of these health effects because they tend to be more physically active, their lungs are still growing, and they are more likely to have asthma or acute respiratory illnesses which can be aggravated when pollution levels are high. ISB routinely monitors particle pollution, specifically Particulate Matter 2.5 (PM2.5). PM2.5 are fine particulates in the air, which can get into the lungs and may even enter the bloodstream.

The Air Quality Index (AQI) was designed by the US Environmental Protection Agency (EPA) and is used to determine air quality. The EPA developed a series of levels (linked here)to help the public better understand the impact of air pollution and determine when air pollution reaches unhealthy levels. ISB developed our practices with other international schools in China, SE Asia, and the US, based on information from the EPA, World Health Organization and UNICEF.

Based on new studies and confusion around the complexity of AQI calculations, ISB has updated our Air Quality Guidelines to be based solely on PM2.5 levels

For any questions, please contact **andrew@isb.ac.th**

AIR QUALITY GUIDELINES FOR OUTDOOR ACTIVITIES & SPORTS

PM 2.5 of 1 -9.1 LEVEL 1
Air quality is satisfactory, and air pollution poses little or no risk.

PM 2.5 of 9.2 - 35.4 LEVEL 2
Air quality in this range is considered unhealthy for sensitive groups. The general public is not likely to be affected. Activities will continue as planned. Those who fall into the "sensitive groups" category will be monitored by teachers and staff. ISB's medical team will observe visitors to the clinic and report any respiratory issues on a medical incident report.

PM 2.5 of 35.5 - 55.4 LEVEL 3
Air quality in this range is considered unhealthy for sensitive groups. Therefore, strenuous activity should be reduced. At this level, outdoor activities may be modified to low intensity and/or shorter time periods. See chart below for specific modifications
Interscholastic games and competitions may see modifications. - See chart below

PM 2.5 of 55.5 - 125.4 LEVEL 4
Air quality in this range is considered to be unhealthy for all groups. At this level, all outdoor activities will be modified, moved indoors, or canceled. Outdoor field trip decisions will be based on the local air quality at the destination using the IQair website.

PM 2.5 of >125.5 LEVEL 5
**If the PM2.5 level exceeds 150 ug/m3, all students and school-related personnel (except those necessary to maintain campus security) will remain indoors. Those staff who are necessary to remain outdoors will be required to wear an N95 mask.
This does not restrict students and staff from moving between buildings. Outdoor field trip decisions will be based on the local air quality of the destination using the IQair website.

Sensitive Group additional:
Students who have clinically diagnosed high sensitivity to air pollution need to contact the Health Center in order to request an official accommodation to support a healthy alternative.

PM 2.5 is measured in ug/m3, and activity adjustments are based on the **ONE-HOUR AVERAGE**.

Sensitive Group		Level 1	Level 2	Level 3	Level 4	Level 5
PM2.5 Range		1 -9.1 ug/m^3	9.2 - 35.4 ug/m^3	35.5 - 55.4 ug/m^3	55.5 - 125.4 ug/m^3	>125.5 ug/m^3
AQI equivalent		0 - 50	51 - 100	101 - 150	151 - 200	>201
A	Prek1 classes / Sensitive Groups	Outdoor Activity OK for all	Ensure that sensitive individuals are medically managing their condition*	Exercise indoors or avoid vigorous outdoor activities.	No outdoor activity. All activities should be moved indoors.	No outdoor activity. All activities should be moved indoors.
	General	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
B	Recess (Less than 20 min)	Outdoor Activity OK for all	Ensure that sensitive individuals are medically managing their condition*	Sensitive individuals should exercise indoors or avoid vigorous outdoor activities.*	Exercise indoors or avoid vigorous outdoor activities. Sensitive individuals should remain indoors.*	No outdoor activity. All activities should be moved indoors.
C	PE	Outdoor Activity OK for all	Ensure that sensitive individuals are medically managing their condition.	Sensitive individuals should exercise indoors or avoid vigorous outdoor activities.	Exercise indoors or limit vigorous outdoor activities to a maximum of 15 minutes. Sensitive individuals should remain indoors.	No outdoor activity. All activities should be moved indoors.
D	Athletic Practice & Training (2-4hrs)	Outdoor Activity OK for all	Ensure that sensitive individuals are medically managing their condition.	Reduce vigorous exercise to 30 minutes per hour of practice time with increased rest breaks and substitutions. Ensure that sensitive individuals are medically managing their condition.	Exercise indoors or reduce vigorous exercise to 30 minutes of practice time with increased rest breaks and substitutions. Sensitive individuals should remain indoors.	No outdoor activity. All activities should be moved indoors.
E	Scheduled sporting events	Outdoor Activity OK for all	Ensure that sensitive individuals are medically managing their condition.	Sensitive individuals should exercise indoors or avoid vigorous outdoor activities.*	Increase rest breaks and substitutions. Ensure that sensitive individuals are medically managing their condition.	Events must be rescheduled or relocated.
F	Other outdoor activities	Outdoor Activity OK for all	Ensure that sensitive individuals are medically managing their condition*	Sensitive individuals should exercise indoors or avoid vigorous outdoor activities.*	Exercise indoors or avoid vigorous outdoor activities. Sensitive individuals should remain indoors.*	No outdoor activity. All activities should be moved indoors.

Definitions:

Prolonged exposure:
The duration of prolonged exposure is dependent upon individual research studies but is often a period of several months to several years.

Sensitive groups: Sensitive groups can include young children, the elderly, pregnant people, or those with underlying heart and lung disease (Please see below).

***Sensitive individuals - Underlying medical conditions:** Parents are encouraged to maintain up-to-date medical records for their children. Although not exhaustive, children with a diagnosis of Asthma, Cystic Fibrosis, Chronic Lung Disease, Arrhythmia, Cardiac Valve Abnormalities will be grouped into the sensitive group as indicated above, regardless of age.

Strenuous activity: An activity that increases the heart rate to a level typically associated with cardio training/exercise.

RESOURCES USED TO DETERMINE CURRENT AIR QUALITY

Readings from four air particulate monitors, located around campus, will be used to determine the current, ISB campus air quality. The average of the four sensors data will be used for determining our guidelines.
Link to this system can be found here: ISB air monitor

Communicating air quality Protocol
The pollutant levels will be monitored automatically throughout the day. A notice will be sent to the entire staff if the one-hour average goes over our designated thresholds. *(These notices will only be sent when we hit level 3)*

- When the PM 2.5 is between 36 - 55 ug/m3 an internal email will be sent indicating the pollutant level and a reminder that PE classes may be modified. The Athletics Office will communicate with coaches that practices will be modified.

- When the PM 2.5 is between 56 - 150 ug/m3 an internal email will be sent indicating the pollutant level and a reminder that PE classes will be modified. Divisional offices will advise PE teachers to avoid prolonged or heavy exercises during outdoor events. The Athletics Office will communicate with coaches that practices will be further modified.

- **If the PM 2.5 level is >150 ug/m3, the blue outdoor warning lights will be activated, and all persons outside will need to move, and stay indoors. In regard to after-school activities. A determination will be made by 1:00 if events are to be canceled. If canceled, an SMS and email will be sent to parents.

**The reduction from level 5 to level 4 is based on the PM2.5 1-hour average and/or, at the discretion of the Director of Risk Management.

Air Quality Index (AQI) for PM2.5 is based on the US Environmental Protection Agency AQI Basics

Specifics on how AQI is calculated are listed here. Particular attention should be taken to the fact that AQI calculations for PM2.5 are based on readings during a 24-hour period.
The below values are listed in AQI, which is calculated off the PM2.5 level. To convert values, please use this resource.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

Research links Listed Below:

https://www.epa.gov/pm-pollution

http://www.who.int/phe/health_topics/outdoorair/en/

https://th.usembassy.gov/air-quality-index-aqi/