## Intake fraction

Intake fraction (IF) is a metric of the emission-to-inhalation relationship, facilitating comparisons among sources in terms of their exposure potential ([Bennett et al., 2002](#_ENREF_1)). For a given emission source and pollutant, intake fraction is the cumulative mass inhaled by the exposed population divided by the cumulative emissions. Considering that IF depends on several parameters affecting the emission-to-intake process, (e.g. prevalent wind, emissions strength, population density), it is expected that it would vary with location and time.

Typical values for the intake fraction greatly vary upon the environmental fate of the compound of interest and the population density of the area of release, and this is the reason why releases to indoor are 2 to 3 orders of magnitude higher than the emissions in urban areas. Intake fraction is especially useful where an overview of the emission-to inhalation pathway is required without detailed modelling of atmospheric and exposure modelling. This is of particular interest when exposure modelling aims at identifying the disproportions of exposure among the socioeconomically disadvantaged population.

Parameters affecting intake fraction include (a) the location where the release occurs i.e. indoor or outdoor and the area of interest, (b) the population density and size of the exposed population close to the area associated to the emissions, (c) the dispersion parameters related either to natural, or to built environment, (d) the compound specific environmental fate parameters and (e) based on the different environmental media distribution, the exposure pathway of relevance.

## References

BENNETT, D. H., MCKONE, T. E., EVANS, J. S., NAZAROFF, W. W., MARGNI, M. D., JOLLIET, O. & SMITH, K. R. 2002. Defining intake fraction. *Environmental Science and Technology,* 36**,** 207A-211A.