

RISK 4

Development of Multimedia Exposure Model for PCBs

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In terms of the risk assessment, qualitative and quantitative informations are needed to estimate the exposures of environmental pollutants, which may be potentiality of risks, and those are the information about the changes caused by the chemical transportation among environmental media and transformation in environmental media by duration.

The various fate mechanism of chemical is possible for estimation of chemical concentration in environmental media. Since there are limitations in measuring the change of chemical concentration within all medium according to the time period, estimating method through modeling are developed.

In this study, we developed environmental fate model using concept of fugacity model. Fugacity Model explain tendency of escape according to composition of environmental media(solid, liquid, and gas) within each medium, water solubility, carbon-absorption coefficient, vapor pressure, and other physical and chemical characters, and that the chemicals transport/transform according to the fugacity of the chemicals.

Based on the concept of Fugacity model, environmental fate model was constructed by utilizing the STELLA[®], a software developed for the Dynamic modeling. Chemical concentration in each medium explain change of input/output doses in environmental media by transport/transformation.

We have constructed a model that can estimate the concentration within the media through the estimation of chemical fate.