



Science Arts & Métiers (SAM)

is an open access repository that collects the work of Arts et Métiers Institute of Technology researchers and makes it freely available over the web where possible.

This is an author-deposited version published in: <https://sam.ensam.eu>
Handle ID: <http://hdl.handle.net/10985/20260>

To cite this version :

Natalia BARANOVSKAYA, Alexandra BELYANOVSKAYA, Bertrand LARATTE, Elena AGEEVA -
The critical parameters of the human health impact calculation - 2021

Any correspondence concerning this service should be sent to the repository

Administrator : archiveouverte@ensam.eu



EGU21-9348

<https://doi.org/10.5194/egusphere-egu21-9348>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



The critical parameters of the human health impact calculation

Natalia Baranovskaya, Alexandra Belyanovskaya, Bertrand Laratte, and Elena Ageeva
Toms, Russian Federation (nata@tpu.ru)

There are many LCA methods and models (e.g. CML 1992, Eco-Indicator 95, IMPACT 2002+, TRACI, USEtox, etc.), used to characterize environmental impacts. Only four LCIA methods include spatial dimension at different geographical levels: Impact World+, LC-IMPACT, EDIP 2003 and USEtox (Bratec et al., 2019). Among these, three (Impact World+, EDIP 2003 and USEtox) include a human health impact category: human toxicity. The USEtox model, recommended by the European Commission, has already proved its efficiency for the coupling of environmental and geochemical studies. The Characterization factors of the USEtox describe environmental fate (FF) of the chemicals, their non- and carcinogenic effect (EF), direct and the indirect exposure (XF). All these factors vary depends on the applicable area. However, despite all advantages of the model, its geographical customization is rather generic. This paper presents the utilization of the already published case study (Belyanovskaya et al., 2019; 2020) with the indirect human exposure factor modification. The investigation present the modified biotransfer factor of the metals (Cr, Zn, Sb, As, Ba) of the meat product calculated specifically for different location inside the area "Central Asia". The paper extends already published results with local data of the city of Vladivostok (Russia).

Acknowledgement

The statistical data processing is supported by State program RF «Science». Project FSWW-0022-2020.

The impact assessment with the USEtox model is supported by the RSF grant (№ 20-64-47021).