

FACET Case Study

Project Introduction

About FACET

FACET is a publicly available exposure assessment software system which will estimate exposure to flavours and additives from foods, beverages, and food contact materials across Europe.

FACET, standing for Flavours, Additives and Food Contact Materials Exposure Tool, The FACET software is the culmination of over five years' work in collaboration with partners from industry, government and academia across Europe. This is the first time that so many stakeholders across so many areas have come together to develop a harmonised methodology to monitor consumer exposure to these chemical groups in Europe.

The software contains a wealth of unique databases and models. These databases were all linked to a migration model that can estimate the amount of a substance leaching from packaging into food, allowing exposure to the substance to be calculated using 15 dietary surveys from 8 member states.

Services Provided

- Advanced Model Creation
- Software Development
- Safe Data Collection
- Data Wrangling

Benefits of FACET

The main reasons that such a tool is required in the EU can be summarized as follows:

- 1.** Efforts to monitor dietary exposure to chemicals tend to be oriented toward specific groups of chemicals and to date, no concerted effort has been made in the EU to combine exposure estimates for several chemicals into one project.
- 2.** In the past, individual projects estimating dietary exposure to chemicals have had a finite objective in providing an exposure estimate at a defined point in time. The present study will certainly do that but it is also intended that the surveillance system developed in the present project will be capable of being both sustained and developed for use by EU regulatory authorities
- 3.** Mathematical modeling can be a useful tool to predict migration of chemicals from FCMs into food. It can, to some extent, replace laboratory migration experiments and thus save time and money.

Project Implementation

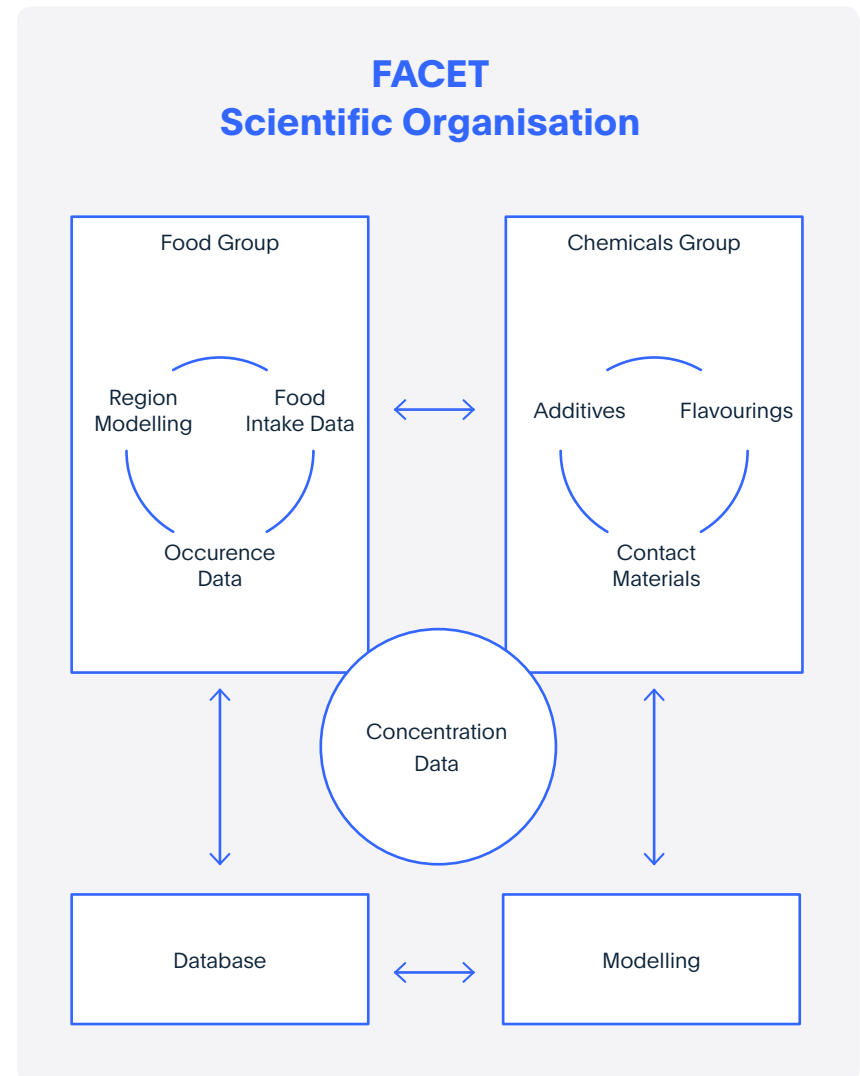
Project Organisation

FACET was a multi-stakeholder project involving 20 EU partners, co-originated by University College Dublin. Creme Global was the technology partner. The project was organised thus:

The Chemicals Group focused on food flavourings, food additives potential migrants from food packaging materials. It listed target chemicals and established relevant concentration data. It also proposed a list of foods likely to contain the target chemicals by interaction with the food group.

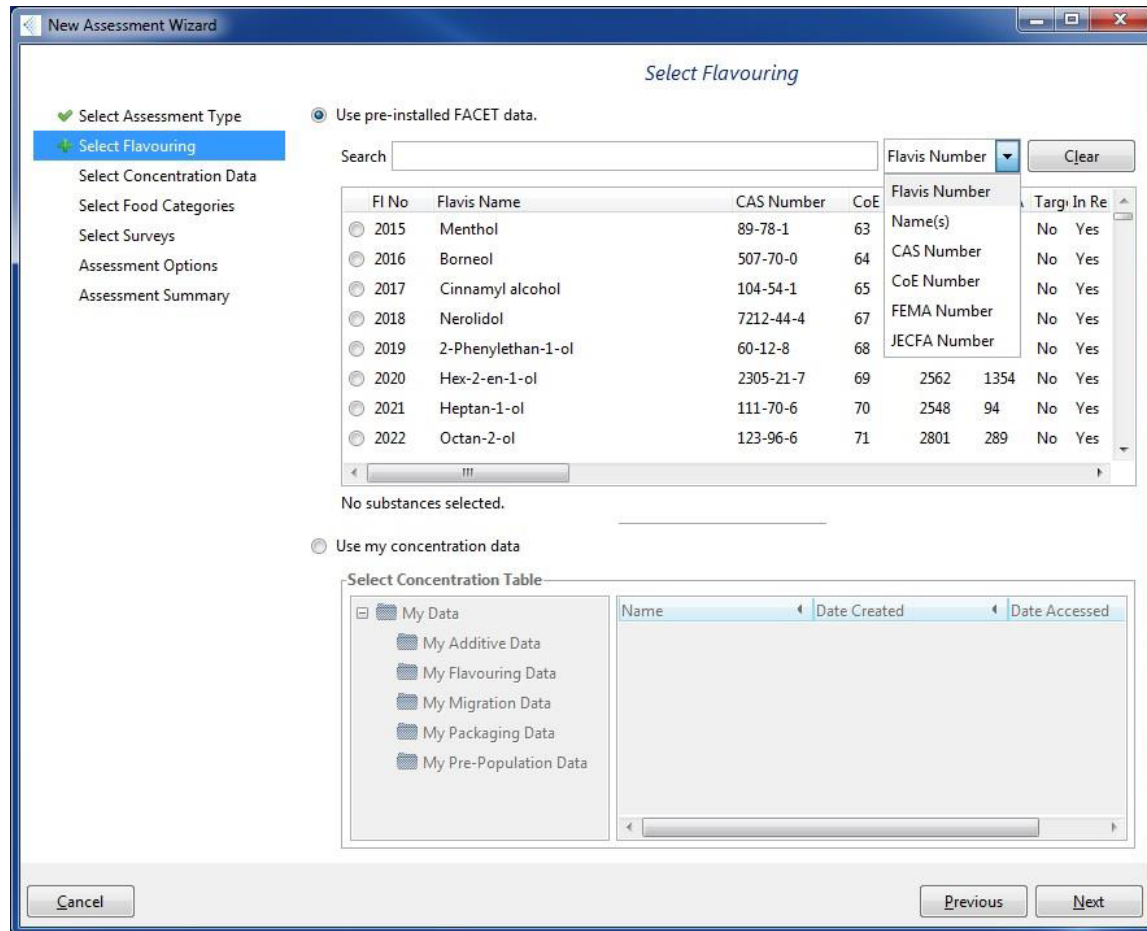
The Food Intake group focused on food intake, chemical occurrence and regional modelling. This group linked with the chemicals group to agree on the definition of food groups and to estimate food intakes of such defined food groups. It created a suitable database architecture for food intake data for input into regional models. The occurrence subgroup worked on food chemical occurrence data with the food chemicals group.

The Database and Modelling Group constructed databases that have connectivity between intake, occurrence and concentration for each chemical. These databases exist in tiers corresponding to the complexity of the data. The database and modelling group worked together with the chemicals group related to migration modelling of migrants from food contact materials into food. It also involved all groups in agreeing on algorithms for probabilistic modelling of exposure.

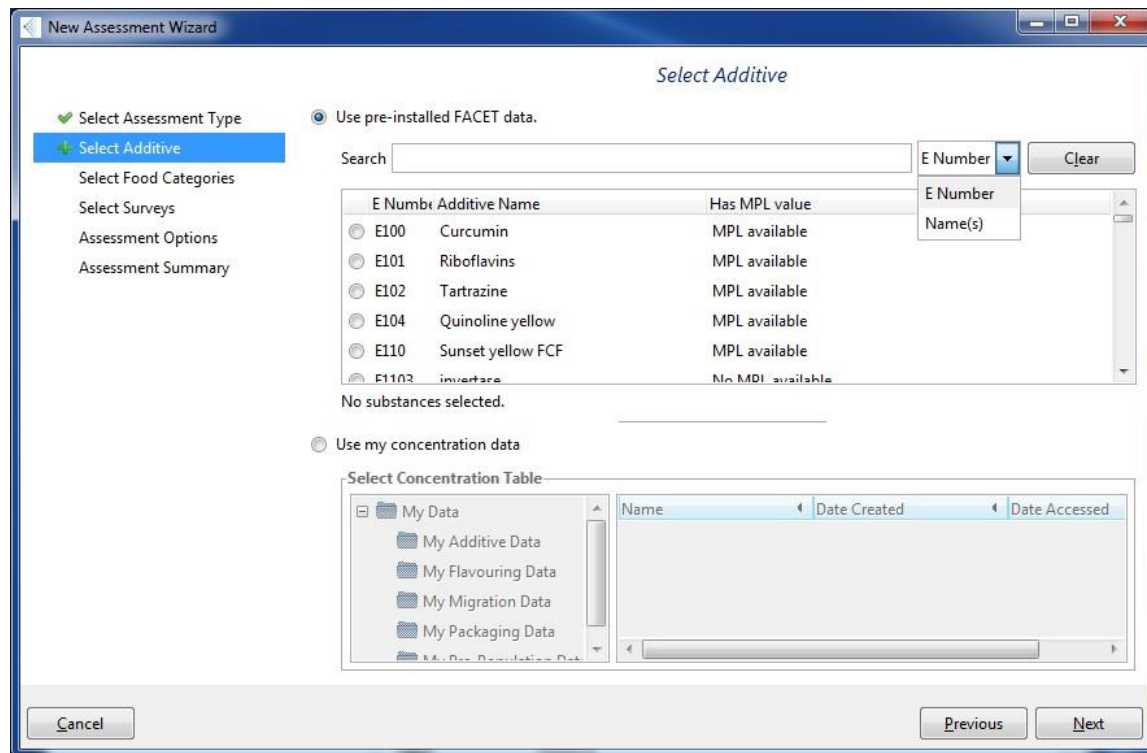


The Software Interface

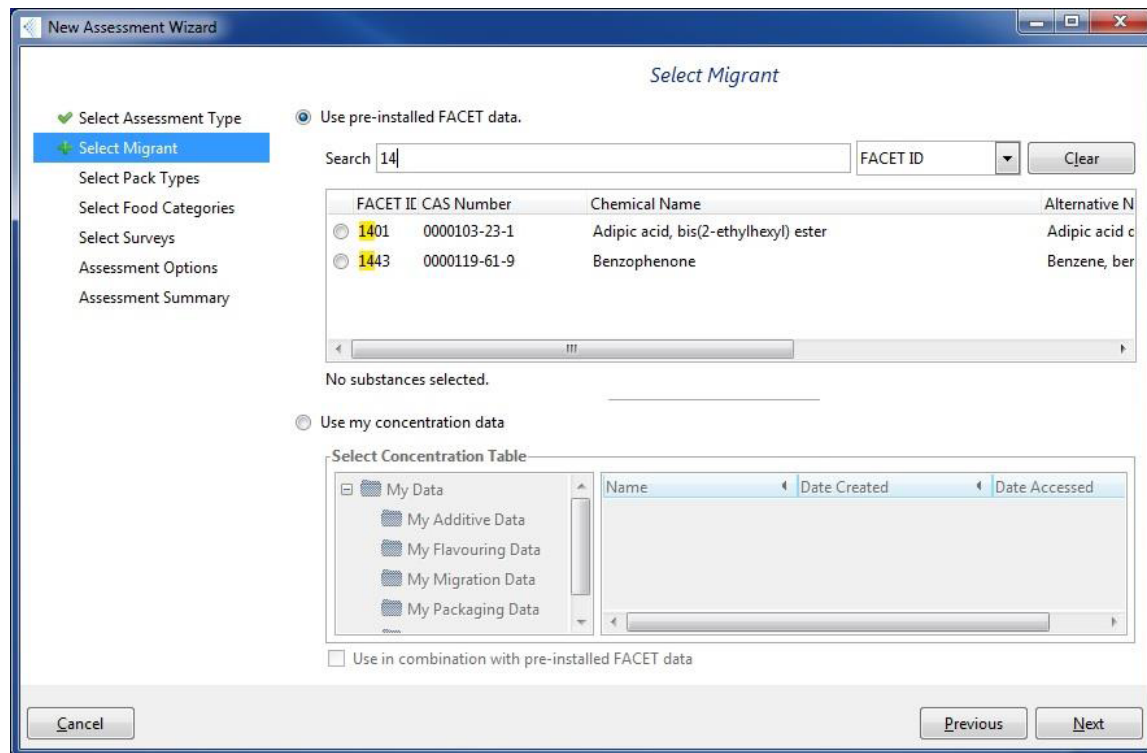
Following are a selection features available within the FACET software interface.



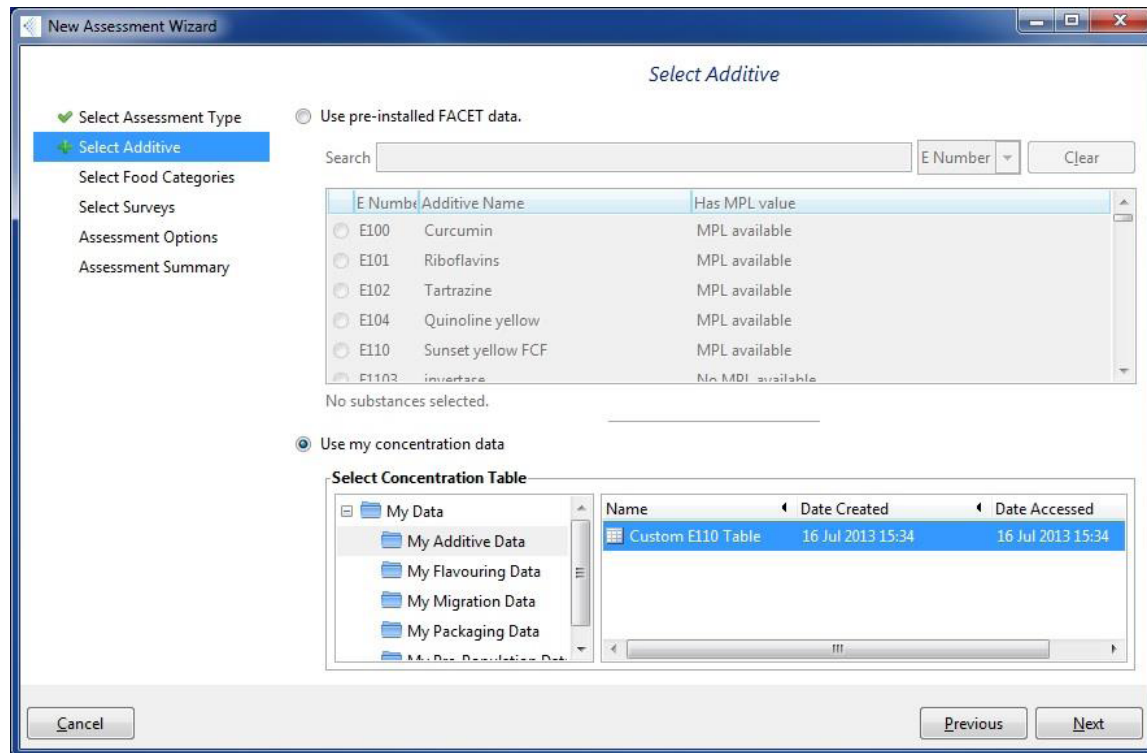
Select Substance



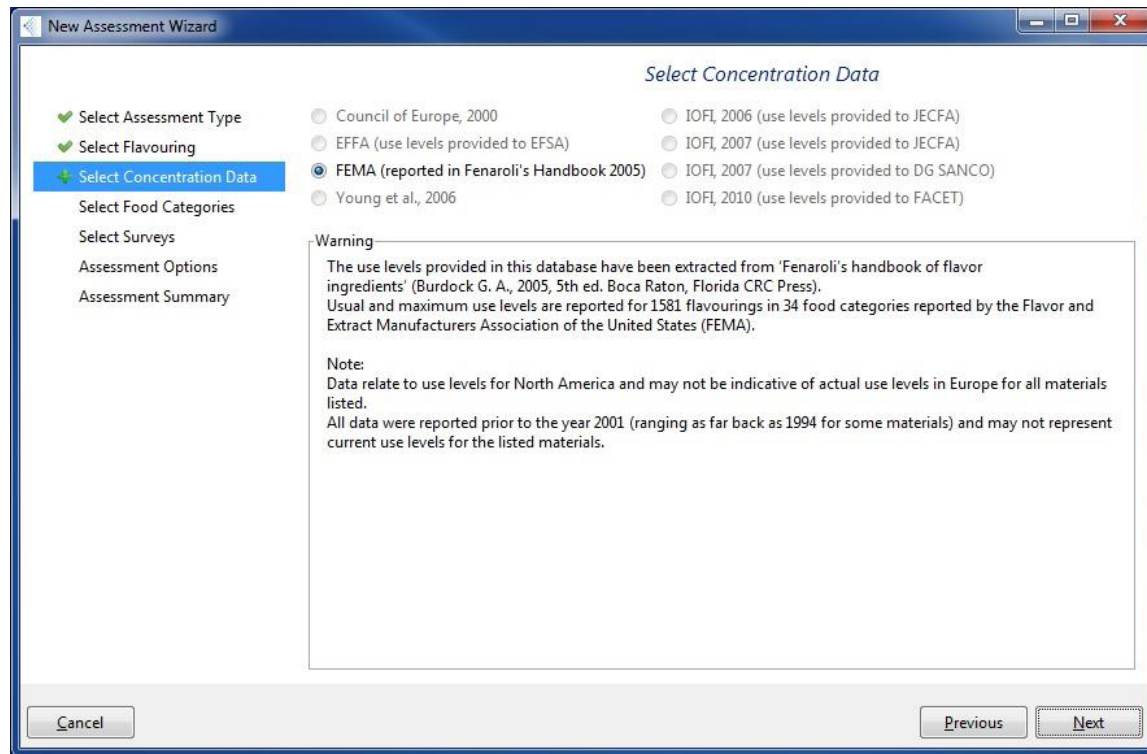
Select Additives



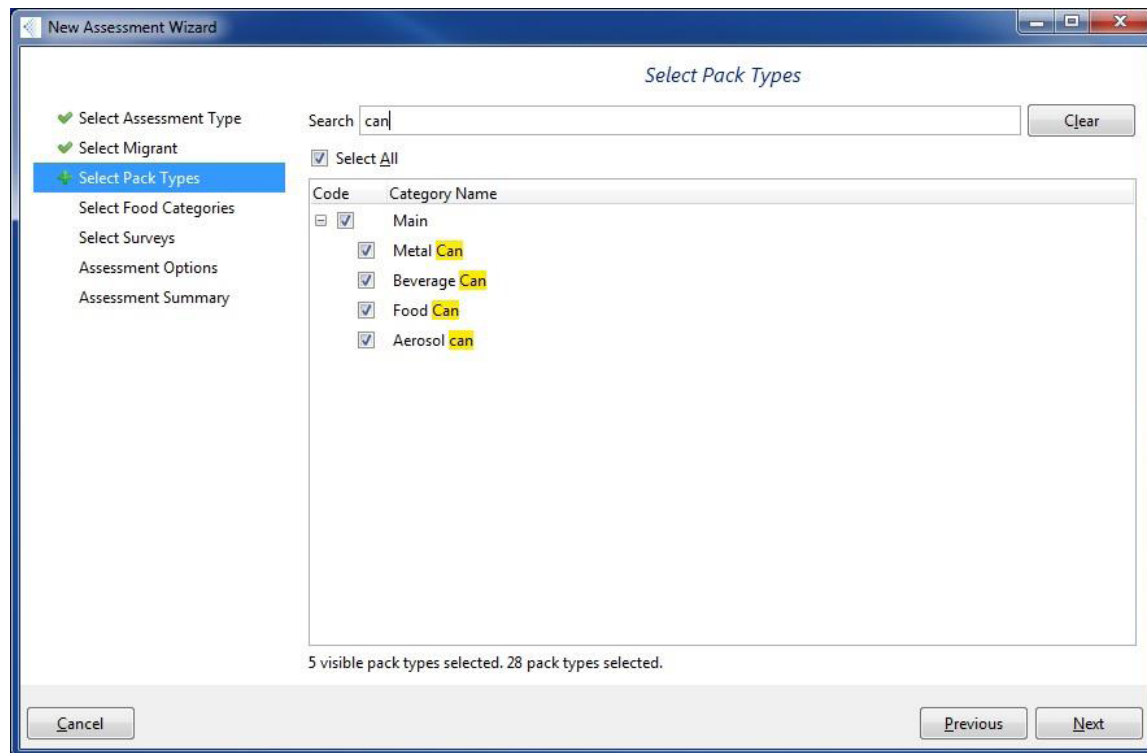
Packaging Migrants



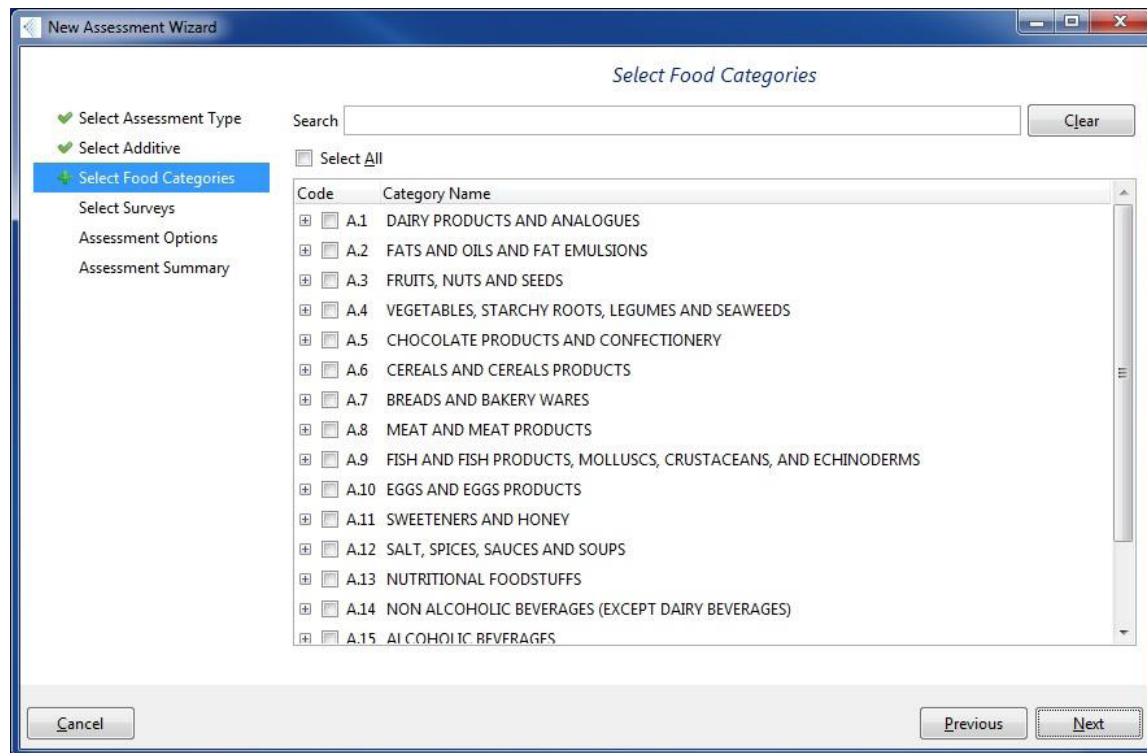
Custom Concentration Data



Custom Concentration Data



Select Pack Types



Select Food Categories

New Assessment Wizard

Select Surveys

Search Clear

Select All

- UK
- Hungary
- France
- Poland
- Finland
- Ireland
- Italy
- Portugal

Gender: Male Female

Age (years): Between and

Filtered Population Size: 6963

Cancel Previous Next

Select a Food Consumption Survey

Assessment Options

Assessment Summary

Assess using:

- Typical use levels
- Upper use levels
- Fitted Distribution

Exclude foods without added flavourings:

Exclude unprocessed fruits, nuts and seeds:

Use probability of addition data:

Flavouring source:

- Added and Natural
- Added Only
- Natural Only

Advanced Options

Cancel Previous Next

[Download](#) the full
FACET Exposure Assessment
Tool User Manual
Version 3.0.2

Additional Output Options

Achievements & Implications

Achievements

- Recording of occurrence levels of targeted chemicals in representative regions of the EU food supply.
- Creation of a database of targeted food chemical concentrations in foods.
- Establishment of a migration modelling framework for migrants in food packaging materials under real conditions of use in order to deliver realistic concentration estimates for consumer exposure modelling.
- Construction of an intake database for foods that are relevant for the targeted chemicals. The database is tiered from very comprehensive data to less detailed data to reflect the existing variability in the access to, and level of detail in, food intake data.
- Development of a PC based, publicly available software programme, taking into account the variation of national food consumption data. This tool is built on known food intake patterns, and in particular on small national surveys and local knowledge to model regional intake of target foods.
- Creation of new databases, populated with the data generated by the project to provide estimates of exposure using the probabilistic model.

Implications

This is a tool of importance because it marks the first and greatest collaborative effort made by food and food packaging industry stakeholders to determine realistic exposure values in Europe, negating worst case scenario exposure calculations. The project ensured that the developed exposure tool will be sustainable and further developed for use by EU regulatory authorities.

Creme Global Services beyond FACET

As creators and expert users, Creme Global has run several scenarios using FACET 3.0.2 for clients to facilitate their internal decision making process. The migration model can also be used in reverse to estimate the migration of a foods' flavour compound into a packaging material overtime, also known as flavour scalping. Flavour scalping can contribute to the deterioration of a products' quality over time.

Additional Resources

Get FACET

The core of the migration model was created by Creme Global and was first used in FACET 3.0.2.; The version of FACET that has been available on the [website](#) of the Joint Research Center April 2017.

The FACET Manual

Understand how the software works by reading the [FACET Manual](#).

CORDIS - FACET Final Report

The Community Research and Development Information Service (CORDIS) is the European Commission's primary source of results from the projects funded by the EU's framework programmes for research and innovation (FP1 to Horizon 2020). Read the [CORDIS - FACET Final Report](#).



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