



The EuroFIR Thesauri - Update wave 2016

A report

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Contents

Introduction.....	4
EuroFIR Food Classification Thesaurus – version LanguaL™ 2014-1.0	5
EuroFIR Component Thesaurus – preparation of the version 1.4.....	6
Carbohydrate components.....	6
Sugar alcohols.....	6
Lipid components	6
Fats	6
Fatty acids.....	7
Salatrim.....	8
Minerals.....	8
Nitrogen compounds.....	8
Vitamins.....	8
Proximates.....	9
EuroFIR Method Indicator Thesaurus – preparation of the version 1.4	10
General issues.....	10
Coding.....	10
Formula	10
Energy.....	12
Carbohydrates	14
Total and available carbohydrates	14
Sugars	16
Lipids.....	16
Fats	16
Fatty acids totals.....	17
Minor corrections – amendments.....	18
Minerals, water	19
Iron – haem- and non-haem.....	19
Salt equivalent	19
Ash calculated.....	19
Water.....	19
Nitrogen compounds.....	19
Proteins	19
Amino acids totals	20
	2

Organic acids	20
Vitamins.....	20
Analytical Method	21
Imputation.....	21
Other EuroFIR Thesauri	22
EuroFIR Acquisition Type Thesaurus – preparation of the version 1.2	22
EuroFIR Matrix Unit Thesaurus – preparation of the version 1.4	22
EuroFIR Unit Thesaurus – preparation of the version 1.2.....	23
EuroFIR Reference Type Thesaurus.....	23
EuroFIR Method Type Thesaurus – preparation of the version 1.2	23
EuroFIR Value Type Thesaurus – preparation of the version 1.2.....	25
Cooperation with INFOODS.....	26
Summary	27
Acknowledgements	28
References.....	29
Attachment.....	32
A List of proposals for update of the EuroFIR Component Thesaurus v1.3	32
A List of proposals for update of the EuroFIR Method Indicator Thesaurus v1.3	34
A list of proposals for update of OTHER EuroFIR Thesauri.....	38
EuroFIR Food Classification Thesaurus – version LanguaL™ 2014-1.0 – a tree view.....	39
EuroFIR Method Component Thesaurus version 1.4- a tree view	42
EuroFIR Method Indicator Thesaurus version 1.4 – a tree view	56
EuroFIR Acquisition Type Thesaurus version 1.2 – a tree view.....	61
EuroFIR Matrix Unit Thesaurus version 1.4 – a tree view	62
EuroFIR Unit Thesaurus version 1.2 –a tree view.....	63
EuroFIR Method Type Thesaurus version 1.2 – a tree view.....	63
EuroFIR Value Type Thesaurus version 1.2 – a tree view.....	64

Introduction

This report informs about update of the EuroFIR Thesauri performed in the period 2015-February 2017, which is presented as “Update wave 2016”.

Editing of the EuroFIR Thesauri is performed by Thesauri editors using the EuroFIR eThesaurus Manager tool available at <http://ethesaurus.eurofir.org/Default.asp>. The eThesaurus Manager is primarily a curator tool for maintenance of and update of the EuroFIR Thesauri, but it also permits a read-only access by an audience of thesauri users to viewing all current and earlier versions of the EuroFIR Thesauri (username: eThesaurusGuest, password: guest\$Welcome). The working (draft) versions of the thesauri that are under the updating process are accessible only for the Editors and are not available for public viewing.

In 2016, functions of the EuroFIR eThesaurus Manager tool were improved. The changes comprise:

- Introduction of a publication date as an identifier of a thesaurus.
- Date of creation and update of a thesaurus made available in the Edit mode accessed only by editors.
- Delete button removed from the Selection screen and introduced to the Setup screen.
- DRAFT (working) versions of the thesauri made non-public.
- Introduction of Open all and Close all descriptors in the term list window.
- Introduction of Ctrl-F option for searches for a descriptor and a code in a term list window.
- Introduction of a clipboard for coping Scope notes and Additional information in the Term editing form (accessed only by Editors).

Details are described in the updated description of the EuroFIR eThesaurus Manager tool (<http://www.eurofir.org/wp-content/uploads/2016/09/THS-facility-description-update-160816.pdf>)

In 2016, The EuroFIR Thesauri webpages were rearranged and reduced to 2 pages available to EuroFIR members only:

The EuroFIR THESAURI page (<http://www.eurofir.org/welcome-to-the-ordinary-members-page/the-eurofir-thesauri/>) is the main EuroFIR Thesauri page that briefly describes the EuroFIR Thesauri, presents a list of their current versions and available report formats, provides access to description of the EuroFIR eThesaurus Manager tool and publications and reports on EuroFIR Thesauri.

The EuroFIR Thesauri update page (<http://www.eurofir.org/welcome-to-the-ordinary-members-page/the-eurofir-thesauri/eurofir-thesauri-update/>) informs about a procedure of updating, presents a form for submitting requests for update and lists of submitted proposals for updates of the EuroFIR Thesauri.

In 2016, a new approach for processing proposals for update of the EuroFIR Thesauri was launched. Individual steps are described in a new EuroFIR Thesauri update page.

The procedure comprises the following steps:

- Sending a request for update to the editor in a required structured format
- Processing of a draft of the proposed term by the editor, incl. assigning an individual ID code to each proposal
- Presenting the requirement and the draft within a list of proposals made available on the EuroFIR Thesauri update page:

The list of submitted proposals for updates of the EuroFIR Thesauri

Proposals for update of the EuroFIR
Method Indicator Thesaurus v1.3

Proposals for update of the EuroFIR
Component Thesaurus v1.3

Proposals for update of the other
EuroFIR Thesauri

- Discussion via a FoodComp LinkedIn group account
- Inclusion of the draft of a term into the Draft (working) version of a particular thesaurus in the EuroFIR eThesaurus Manager tool and documentation of a proposal ID and changes in the Editor's notes section of a particular term under the updating process. Only the Editors have access to the draft versions. The wording of inserted terms is available in the lists of proposals.
- Collection of drafts of terms in the working version of thesauri.
- Publishing the updated Thesauri via the EuroFIR eThesaurus Manager tool <http://ethesaurus.eurofir.org/Default.asp>

EuroFIR Food Classification Thesaurus – version LanguaL™ 2014-1.0

The EuroFIR Food Classification system has been created with the aim to produce a harmonized food classification system suitable for use in all European food composition databases (European Food Safety Authority, 2011, p. 50; Ireland & Møller, 2010) and made available for food indexing via the LanguaL™ Thesaurus (http://www.languaL.org/languaL_Thesaurus.asp).

In 2016, EuroFIR Food Classification system was introduced to the list of EuroFIR Thesauri in the Thesauri Manager and made available to public as EuroFIR Food Classification Thesaurus. The latest version of LanguaL™ (LanguaL™ 2014-1.0 http://www.languaL.org/languaL_Thesaurus.asp) thesaurus has been used for input.

Future updates of the EuroFIR Food Classification Thesaurus will be conducted in cooperation with the Danish Food Informatics (DFI) that provides updates of the LanguaL™ Thesaurus.

A tree view of this thesaurus is given in the attachment.

EuroFIR Component Thesaurus – preparation of the version 1.4

The list of Proposals for update of the EuroFIR Component Thesaurus v1.3 is given in the attachment. Details about proposals are available is available on EuroFIR Thesauri update page (see above).

A tree view of the version 1.4 with is given in the attachment.

Carbohydrate components

Sugar alcohols

A new term for the polyol ***erythritol [ERYTHL]*** has been added (Proposal ID CT1.3-C01). Erythritol is given as contributing no energy value in energy calculation according to current EU legislation on food labelling - Regulation (EU) No 1169/2011 of the European Parliament and the Council of 25 October 2011 on the provision of food information to consumers [2011] OJ L304/18 (Regulation (EU) No 1169/2011). Contribution of [ERYTHL] to energy is 0 kJ/0 kcal/g. Its e-number is E968 (https://webgate.ec.europa.eu/foods_system/main/?event=display).

An amendment of the term ***polyols, total" [POLYL]*** (Proposal ID: CT1.3-C02) comprised update of the Additional Information field with the current EU legislation on food labelling (Regulation (EU) No 1169/2011).

Lipid components

Fats

A change of a descriptor name in the following terms was requested by the Dutch database. The aim was to get the components sorted alphabetically in a logical way:

Amended Descriptor name	Code	Proposal ID
fat, polyunsaturated, total	FATPU	CT1.3-L01
fat, saturated, total	FATSAT	CT1.3-L02
fat, trans, total	FATTRN	CT1.3-L03
fat, monounsaturated, total	FATMU	CT1.3-L04
fat, monounsaturated cis, total	FATMUCIS	CT1.3-L05

In the above listed terms, the Scope Note contains the following text: *"Use for total xxxsaturated fat, which includes the contribution of the glycerol moiety as well as the xxxsaturated fatty acids. Use of the term is deprecated except in old data"* (Unwin, 2010, p. 10). Anders Møller pointed out that *"the last sentence is not true. The descriptors are still valid and terms/descriptors used in US food labelling"* (FDA, 2013). The Scope Note in the above listed terms has been amended, the last sentence has been removed. (Proposal ID: CT1.3-L14)

The Dutch database requested a term for ***fat, unsaturated, total [FATPU]*** (Proposal ID: CT1.3-L10). This new term has also been related to the corresponding fatty acid term.

The above-mentioned FAT fractions are expressed as triacylglycerols (TAGs). Anders Møller from DFI recommended to separate these TAGs from other fat descriptors. A new term ***fat expressed as**

triacyl glycerol (TAG) [GRP_FATTAG]* has been created as NT to Fats [GRP_FAT] and the following descriptors have been inserted down as NT to the new descriptor, FATTAG (Proposal ID: CT1.3-L13).

fat, polyunsaturated, total [FATPU]

fat, saturated, total [FATSAT]

fat, trans, total [FATTRN]

fat, monounsaturated, total [FATMU]

fat, monounsaturated cis, total [FATMUCIS]

fat, unsaturated, total [FATPU]

Fatty acids

The Dutch database requested new terms for the following individual fatty acids:

Fatty acid F18:1 cis with double bonds at the n-1 to n-3 positions, but not further specified (Proposal ID: CT1.3_L06)

A code for a new term ***fatty acid 18:1 (n<4) cis [F18:1CN3B]*** has been purposed according to the convention that indicates an isomer with position of double in the range n<4 as presented in Unwin, 2010, p.13. According to this convention CN3B in the code reads as n3 cis and below.

Fatty acid F15:1 cis, position of the double bond not further specified (Proposal ID: CT1.3_L07)

A code for a new term ***fatty acid 15:1 cis unknown position [F15:1CNX]*** is purposed according to the convention for indication of unknown position of double bond presented in Unwin, Møller & Ireland, 2012, p. 6. According to this convention CNX in the code reads as cis unknown position.

A code for a term ***fatty acid 21:5 n-3 all-cis [F21:5CN3]*** has been included (Proposal ID: CT1.3_L08).

A new term for pristanic acid (2,6,10,14-tetramethylpentadecanoic) was requested (Proposal ID: CT1.3-L09).

“Branched-chain fatty acids are common constituents of the lipids of bacteria and animals. Normally, the fatty acyl chain is saturated and the branch is a methyl group. The most common branched-chain fatty acids are mono-methyl-branched, but di- and poly-methyl-branched fatty acids are also known.” (Christie, W.W., 2012) Saturated iso- and anteiso-methyl-branched fatty acids are covered in the Component THS. The codes for mono methyl branched FAs include number of total carbons and indication of AI (anteiso), I (iso) at the end of the code – F17:0AI, F17:0I, respectively. Multi methyl branched saturated fatty acids have not been covered in the Component Thesaurus yet. A convention for defining a code for these type of acids has not been available yet. A provisional code “F19:0 (pristanic acid)” [F19:0MMMM] been proposed (Proposal ID: CT1.3-L09). Based on advice of Anders Møller, a more suitable code *** fatty acid 19:0 (pristanic acid) [F19:0-4ME]*** has been used. According to this convention other poly methyl- branched saturated fatty acid, e.g. phytanic acid (<CheBI>16285) (Roca-Saavedra, P. et al., 2017) can be also added to the Component Thesaurus. These methyl-branched fatty acids (pristanic, phytanic) are present in a diet. Their content in milk and dairy was investigated in Netherlands (Capuano et al., 2014) and Germany (Vetter, W. & Schröder, M., 2010).

A new term for ***fatty acids, total unsaturated [FAUNSAT]*** (Proposal ID: CT1.3-L11) has been added to the Component Thesaurus based on a request of the Dutch database.

Salatrim

A new term for ***salatrim [SALATR]*** (Proposal ID: CT1.3-L12) has been added to the Component Thesaurus. The term is to be used for a group of reduced calorie triacylglycerides developed for use as alternative fats (Commission Decision 2003/867/EC). Salatrim is an acronym for (Short And Long Chain Triglyceride Molecules). Salatrim is given as a contributing value in energy calculation according to current EU legislation (Regulation (EU) No 1169/2011) -25 kJ/6kcal/g. Contribution to energy is reflected in the corresponding terms of the Method Indicators Thesaurus.

Minerals

Danish Food Informatics (DFI) requested a new term ***phosphorus pentoxide [P2O5]*** that is to be used when analytical results for phosphorous are expressed as phosphorus pentoxide (Proposal ID: CT1.3-M01).

The Dutch database requested a new term for ***salt, added [NACLAD]*** (Proposal ID: CT1.3-M02):

*Susanne Westenbrink: "As far as I understand from the EU1169 regulation, the word salt on labels is used for total salt, including added and natural salt or sodium. Salt may be calculated from sodium*2,5. Or it can be calculated from the amount of salt used in the recipe. For us (NL) we use NACLAD for added salt and NACL for total salt (as indicated on the label), and of course NA for sodium. If needed the manufacturer can indicate that the salt content is only due to natural sodium. [...]I think it is useful to give more precise information: NACL is total salt (from natural sodium and added salt). In our database we have several values for salt (from labels) and hardly any values for added salt. One of the difficulties with salt and labels is that the salt content may be calculated based on sodium, but if this sodium content is measured by analyses, it may include additives containing sodium, but no chloride. There will always be a level of incorrectness, I think."*

A term for ***salt, added [NACLAD]*** has been inserted in to the Component Thesaurus for salt (sodium chloride) added to foods (Proposal ID: CT1.3-M02).

Nitrogen compounds

New terms for ***Amino acids, total essential; eight essential amino acids + HIS and ARG [AAE10A]*** (Proposal ID: CT1.3-N01) and ***Amino acids, total essential; eight essential amino acids + HIS [AAE9]*** (Proposal ID: CT1.3-N02). The codes of these totals conform with the corresponding INFOODS tag names (AAE10A and AAE9, respectively).

Vitamins

Amendment of the Scope Notes, Additional Information and the synonyms section for the term ***thiamin [THIA]*** was requested by DFI (Proposal ID: CT1.3-V01). The proposal reflects outputs of thiamine analysis by analytical methods.

The Scope Note has been changed to: "Used if the expression of the thiamin value is not clear. Often defined as total thiamin, i.e. free thiamin and thiamin phosphorylated forms (thiamin mono-, di- and tri-phosphate)".

The Additional Information has been changed to:

<ChEBI>26948
<INFOODS>THIA
Values are normally expressed as thiamin chloride hydrochloride (ChEBI:49105), although values are sometimes expressed as the free thiamin cation (ChEBI:18385) or as thiamin monochloride (ChEBI:33283).
EuroFIR priority: 1.

Synonym thiamine dichloride has been deleted.

DFI requests also addition the following narrower new terms to the current descriptor THIA:

thiamin chloride hydrochloride [THIACLHCL] for use if thiamin has been analysed with thiamin chloride hydrochloride as standard solution, e.g. AOAC 942.23, 953.17, 957.17, 986.27 or EN 14122 and no recalculation of analytical results has taken place. (Proposal ID: CT1.3-V02)

thiamin chloride [THIACL] for use if thiamin has been analysed with thiamin chloride hydrochloride as standard solution, e.g. AOAC 942.23, 953.17, 957.17, 986.27 or EN 14122 and recalculation of analytical results has been carried out using a factor of 0.892. (Proposal ID: CT1.3-V03)

thiamin(1+) ion [THIA_1P] for use if thiamin has been analysed with thiamin chloride hydrochloride as standard e.g. AOAC 942.23, 953.17, 957.17, 986.27 or EN 14122 and recalculation of analytical results has been carried out using a factor of 0.787. (Proposal ID: CT1.3-V04). Indication of the (1+) in the code is proposed according to a convention presented by Unwin, 2013, p. 7. According to this convention, the plus sign in the code is to be avoided and the plus/positive sign is separated from the core name by underscore.

Proximates

The ***Proximates group [GRP_PROX]*** included the following nutrients: ALC, ASH, ENERA, ENERC, NT, PROT, WATER in the EuroFIR Component Thesaurus v1.3. Other nutrients formerly present in the eSearch proximates group were missing. It was purposed to enlarge the proximate group and include the following missing components: FAT, CHOT, CHO, SUGAR, SUGAD, OA, POLY, FIBT (Proposal ID: CT1.3-Z01). Using a function of a polyhierarchy a copy of the terms FAT, CHOT, CHO, SUGAR, SUGAD, OA, POLY, FIBT has been included also in the Proximates group [GRP_PROX].

DFI pointed out that *“**Dry matter [DRYMAT]*** is listed under Food properties and measures, it is actually one of the original Proximates and should be listed there instead. The issue goes all the way back to the version 1.1, where the grouping was introduced”* (Proposal ID: CT1.3-Z02). The term DRYMAT has been shifted to the Proximates group [GRP_PROX].

EuroFIR Method Indicator Thesaurus – preparation of the version 1.4

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A tree view of the version 1.4 with is given in the attachment.

General issues

Coding

The EuroFIR Method Indicator codes are alpha numerical in the form of MIRXXX (X=digit) for the top level terms and MIXXXX (x=digit) for other terms. The MIXXXX terms are divided into two main groups – MIOXXX – terms for calculation methods and MI1XXX terms for analytical methods. Within the calculation methods, the terms in the MIOXXX section are further arranged according to groups of components. Assignment of new codes has considered this approach.

Formula

Within an Additional Information of a term, a section <Formula> is present. The formulae given in this section are either generic (not specifying an exact formula) or as an exact formula. In the majority of the formulae, component units are not given, with an exception of energy calculations.

A concept for explicit / generic formula was an issue of discussion in the context of FoodCase:

Ido Toxopeus from the Dutch database advised:

From: Ido Toxopeus (Mail Sent: Thursday, July 21, 2016)

*"Eurofir to make the formula's explicit rather than e.g.: " sum of individual cis n-3 fatty acids"
I see two reasons for that advice.*

1) Technical: Foodcase or any other DMS requires an explicit formula.

In due time we could ask Karl to make the formula interpretation in FoodCase even better. I can imagine "markers" of some sort identifying certain components. We could make a procedure in foodcase to add the values of all components with a certain marker, or all components in a certain componentgroup. But for now, there are more pressing issues to solve in FoodCase.

So, foodcase needs an explicit formula, we could ask Karl to make some Eurofir components editable by the (admin) users. That way each country could define it's own explicit formula for one MI code. However, I do not think that that's a good idea:

2) In my understanding the point of making (and imposing) a European thesaurus is standardisation. Withing Eurofir we want to make sure we all mean the same thing when we say "NACL", "ENERC" or "MI131". If you would allow every country to define it's own formula for a methodindicator then the values of the components calculated with that methodindicator are no longer comparable between different countries.

The pragmatic solution would be to define the formula in such a way that all relevant components are included, but that none is required."

Ido's opinion was supported by Karl Presser: (Mail Sent: Tuesday, August 02, 2016)

.... Ido brought up a good point: Every DBMS needs an explicit formula which is mostly present for MIs. Only fatty acids are simplified because of the amount of individual fatty

acids. So basically we can define the full formula or write something like FATRS = [sum of individual FAs].

I also wouldn't let users edit a EuroFIR MI because it is against harmonisation and a software update could override user's formula. I strongly recommend to have one of the formulas above. I can help and generate the formula by script so nobody needs to type in all individual fatty acids.

Introducing the concept of optional and required component in a formula is a nice idea.

The opinion of Marie Machackova – the THS Editor (Mail sent: Tuesday, August 02, 2016)

“the background concept of MIs is to inform about a so called HEADLINE method for obtaining a value. Based on this concept details should be specified in the Method Specification entity.

Concerning fatty acids totals the following opinion was published in one of the THS reports “ It may not be necessary or helpful to define separate methods terms for each totaled component, but to simply document the calculation method as Simple summation [MIR006]”

[http://www.eurofir.org/wp-](http://www.eurofir.org/wp-content/uploads/EuroFIR%20NEXUS/Deliverables/D1.11_final.pdf)

[content/uploads/EuroFIR%20NEXUS/Deliverables/D1.11_final.pdf](http://www.eurofir.org/wp-content/uploads/EuroFIR%20NEXUS/Deliverables/D1.11_final.pdf), p. 15.

In my opinion the best solution for „sums“ is presented in the following MI term.

Sugar calculated as the sum of individual mono- and disaccharides

FTC: MI0512

BT: Simple summation [MIR006]

SN: The contributing values should match the individual sugars reported in the dataset, otherwise detail of the calculation should be reported in the Method Description.

AI: Sugar = sum of individual monosaccharides and disaccharidesME115;ME116;ME166;ME206;ME244SUGAR

The approach for „generic sums“ has not been recognized as a problem when we have separate DMSs for our datasets. We just have adjusted an appropriate MI with „generic sum“, other details were kept within our dataset.

With introducing a FOODCASE as one DMS for many DBs a call for explicit formula to accompany an individual MI is a topic. In a particular case of FAs I could not even imagine how huge number of specific MIs could we have in a future to cover all variations for FA totals in the DBs. That's why I am also in favour to prefer a so called “generic sum”. This might be also useful for sums of other components.

According to Jayne Ireland: *„The idea seems fine for simple formulas, and I can understand why having explicit formulas is attractive to programmers. However, including these in the Method Indicator Thesaurus would rapidly lead to a multitude of MI terms. The entity Method Specification was created to provide details, not only of analytical methods but also of calculation methods.*

I think it is best to keep the formula type simple (generic) in MI and record details + explicit formulas in MS.”

A concept for explicit / generic formula is a specific FoodCase issue. It can be discussed, but the origin core principles of the EuroFIR data documentation framework described by Jayne above should be followed.

The issue of generic x specific (explicit) formula was discussed at the EuroFIR Thesauri workshop organised within the EuroFIR FOOD FORUM 2017 meeting in Brussels (5-6 April, 2017). Use of the both types of formulae was presented:

Fatty acids, omega-3, calculated as the sum of individual fatty acids [MI0219]

• Generic

Additional information ▶ Copy to clipboard

<Formula>FAPUN3 = sum of individual cis n-3 fatty acids
 <Component>FAPUN3

- Details in the Method Specification Entity
- Meets the concept of the EuroFIR data structure
- Fits for all DBs



• Specific

In Dutch DB / In Czech DB

FAPUN3 = F18:3CN3+F18:4CN3+F20:3CN3+F20:4CN3+F20:5CN3+F22:3CN3+F22:5CN3+F22:6CN3

- One definition as main, the others in method Specification entity?
- For each DB a new MI? – specification of a country in name of a descriptor?
- Multitude of terms!

The following outputs of the above mentioned meeting will be implemented:

Preference of generic formulae, especially for totalled components.

The term *Sugar calculated as the sum of individual mono- and disaccharides [MI0512]* (see above) is an inspiring example how to handle generic formulae for totalled components.

Use of the generic term *Simple summation [MIR006]* is also possible.

Documentation of details of the calculation in the Method Specification entity.

Energy

The Regulation (EU) No 1169/2011 on the provision of food information to consumers combines 2 Directives into one legislation: 2000/13/EC - Labelling, presentation and advertising of foodstuffs (applicable until 12 December 2014) and 90/496/EEC - Nutrition labelling for foodstuffs (http://ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation_en)

The Method Indicator Thesaurus version 1.3 has the following terms for calculation of ENERC:

Energy calculated according to Nutrition Labelling Directive 2008/100/EC (kJ) [MI0114]

Energy calculated according to Nutrition Labelling Directive 2008/100/EC (kcal) [MI0115].

Definition of ENERC is almost the same as in the Regulation (EU) No 1169/2011, with the only exception for contribution of the polyol erythritol that is newly defined as 0 kJ/0kcal/g (vs. 0.9 kJ/0.2kcal/g). In order not to enter a need for recoding the terms MI0114 and MI0115 have been amended instead of introduction of new terms:

Energy calculated according to Regulation (EU) 1169/2011 (kJ) [MI0114] (Proposal ID: MI1.3-E02)

Energy (kJ) = 17 kJ/g x g PROT + 17 kJ/g x (g CHO - g POLYL) + 37 kJ/g x (g FAT – g SALATR) + 29 kJ/g x g ALC + 8 kJ/g x g FIBT + 13 kJ/g x g OA + 10 kJ/g x (g POLYL-g ERYTHL) + 25 kJ/g x g SALATR

Energy calculated according to Regulation (EU) 1169/2011 (kcal) [MI0115] (Proposal ID: MI1.3-E03)

$$\text{Energy (kcal)} = 4 \text{ kcal/g} \times \text{g PROT} + 4 \text{ kcal/g} \times (\text{g CHO} - \text{g POLYL}) + 9 \text{ kcal/g} \times (\text{g FAT} - \text{g SALATR}) + 7 \text{ kcal/g} \times \text{g ALC} + 2 \text{ kcal/g} \times \text{g FIBT} + 3 \text{ kcal/g} \times \text{g OA} + 2.4 \text{ kcal/g} \times (\text{g POLYL} - \text{g ERYTHL}) + 6 \text{ kcal/g} \times \text{g SALATR}.$$

The above mentioned formulae for ENERC incorporate all contributions to total metabolisable energy specified in the Regulation (EU) No 1169/2011. In these formulae, contributions of erythritol and [ERYTHL] and [SALATR] are subtracted from contributions of POLYL and FAT, respectively, in order not to mispresent reduced energy content of ERYTHL and SALATR. In these formulae, Protein is calculated as total Kjeldahl nitrogen \times 6.25.

Two new terms have been added with a similar formula as in MI0114 and MI0115, but with protein calculated from Jones NCF:

***Energy calculated according to Regulation (EU) 1169/2011 (kJ, NCF protein exception)**

[MI0118]* (Proposal ID: MI1.3-E04)

***Energy calculated according to Regulation (EU) 1169/2011 (kcal, NCF protein exception)**

[MI0119]* (Proposal ID: MI1.3-E05)

The following terms for ENERC have been marked as inactive:

Inactivated terms for calculation of ENERC	Code	Proposal ID
Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ)	MI0107	MI1.3-E08
Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kcal)	MI0108	MI1.3-E07
Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ, polydextrose exception)	MI0109	MI1.3-E10
Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kcal, NCF protein exception)	MI0112	MI1.3-E06
Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ, NCF protein exception)	MI0113	MI1.3-E09

They have become deprecated after introduction of the Regulation (EU) No 1169/2011. A warning message about this has been inserted into Scope notes. References to Method Indicator Thesaurus terms covering the currently valid Regulation (EU) No 1169/2011 were also inserted into the Scope Notes. Inactive terms have not been deleted from the thesaurus. Information about “inactivation” is seen as a prefix to Scope Notes text *“NB: This term is only kept for backward compatibility. DO NOT USE for new indexing.”*

The terms ***Energy calculated according to Codex Alimentarius (kcal) [MI0103]*** (Proposal ID: MI1.3-E11) and ***Energy calculated according to Codex Alimentarius (kJ) [MI0104]*** (Proposal ID: MI1.3-E12) have been amended. In compliance with definition of carbohydrates in the corresponding Codex Alimentarius document (Codex Alimentarius Commission, 2016, point 3.3.1.2.) the Component Thesaurus code for available carbohydrates (CHO) has been introduced instead of a CHOT code in the calculation formula.

$$\text{Energy (kcal)} = (4 \times \text{g PROT}) + (4 \times \text{g CHO}) + (9 \times \text{g FAT}) + (7 \times \text{g ALC}) + [3 \times \text{g OA}] - \text{in [MI0103]}$$

$$\text{Energy (kJ)} = (17 \times \text{g PROT}) + (17 \times \text{g CHO}) + (37 \times \text{g FAT}) + (29 \times \text{g ALC}) + (13 \times \text{g OA}) - \text{in [MI0104].}$$

The Swiss database requested new terms for calculation of ENERC according to Swiss standard (Das Eidgenössische Departement des Innern, 2005):

Energy calculated according to Swiss Standard (kJ) [MI0711] (Proposal ID: MI1.3-E13)
calculation method:

Energy (kJ) = 17 kJ/g x g PROT + 17 kJ/g x (g CHO - g POLYL) + 37 kJ/g x g FAT + 29 kJ/g x g ALC
+ 13 kJ/g x g OA + 10 kJ/g x g POLYL + 8 kJ/g x g OLSAC + 4 kJ/g x g INULIN + 8 kJ/g x g FIBT

Energy calculated according to Swiss Standard (kcal) [MI0712] (Proposal ID: MI1.3-E14)
calculation method:

Energy (kcal) = 4 kcal/g x g PROT + 4 kcal/g x (g CHO - g POLYL) + 9 kcal/g x g FAT + 7 kcal/g x g ALC
+ 3 kcal/g x g OA + 2.4 kcal/g x g POLYL + 2 kcal/g x g OLSAC + 1 kcal/g x g INULIN + 2
kcal/g x g FIBT

Additional Information in the term ***Energy calculated according to Atwater (kJ, general factors) [MI0111]*** has been amended. A text belonging to another descriptor has been replaced by a text appropriate to MI0111. The text of Additional Information for MI0111 from Method Indicator v.1.1 was used. It includes the following formula:

Energy (kJ) = (17 x g PROT) + (38 x g CHOT) + (17 x g FAT) + (30 x g ALC), which includes typing errors for FAT and CHOT contributions.

A corrected formula was included:

Energy (kJ) = (17 x g PROT) + (38 x g FAT) + (17 x g CHOT) + (30 x g ALC)

Carbohydrates

Total and available carbohydrates

Expression of carbohydrate values and interpretation of the carbohydrate entity is a complicated issue as is demonstrated in a survey of Danish Food Informatics, 2015. *"Definitions of the component carbohydrate differ with regional/national legislation/regulation as well as national interpretations of this. When it comes to expression of carbohydrate in food composition databases and tables the picture seems to be even more "colourful" due to the extra dimensions, nutrition and food technology, that may be included with the values in food composition databases/tables."* (Danish Food Informatics, 2015).

In order to avoid an introduction of many terms with combinations of individually defined components contributing in this calculation, generic terms for calculation of carbohydrates– both total and available by difference – have been introduced. In the generic terms, users are referenced to definition of contributing components either in the EuroFIR Component Thesaurus or in the EuroFIR Method Indicator Thesaurus.

Two new terms have been introduced for calculation of carbohydrates by difference with inclusion of organic acids in the calculation:

Carbohydrate, total, calculated by difference, generic, organic acids considered [MI0187]
(Proposal ID: MI1.3-C04) – formula: CHOT= 100 – (WATER + PROT + FAT + ALC + ASH + OA)

Carbohydrate, available, calculated by difference, generic, organic acids considered [MI0189]
(Proposal ID: MI1.3-C03) – formula: CHO = 100 – (WATER + PROT + FAT + ALC + ASH + FIBT + OA)

The term ***Carbohydrate, total, calculated by difference [MI0131]*** has been amended. The fact that this is a generic term, organic acids not considered has been included into the name of the

descriptor. Component Thesaurus component ID codes has been introduced to the formula in the Additional Information: ***Carbohydrate, total, calculated by difference, generic, organic acids not considered [MI0131]*** (Proposal ID: MI1.3-C01) with a formula $CHOT = 100 - (WATER + PROT + FAT + ALC + ASH)$.

The term ***Carbohydrate, available, calculated from total carbohydrate by difference [MI0184]*** has been amended. The fact that this is a generic term, organic acids not considered has been included into the name of the descriptor: ***Carbohydrate, available, calculated by difference, generic, organic acids not considered [MI0184]*** (Proposal ID: MI1.3-C02). The formula $CHO = CHOT - FIBT$ has been replaced by $CHO = 100 - (WATER + PROT + FAT + ALC + ASH) - FIBT$ in the Additional Information.

In the term ***Carbohydrate, available, calculated by difference [MI0183]***, descriptor name has been amended to ***Carbohydrate, available, calculated by difference, organic acids not considered, (nitrogen*6.25, AOAC fibre, ash as sum of minerals) [MI0183]*** (Proposal ID: MI1.3-C05) in order to indicate that this a specific (not generic term). Out of this reason specification of contributing components has been introduced in the name of the descriptor. Information that organic acids are not considered in the calculation, has been added also into the Scope Note.

The Swiss database requested a new term for Carbohydrate, available, calculated by difference (using PROT instead of 6.25*NT) with a formula $CHO = 100 - (PROT + FAT + WATER + FIBT + ALC + NA + K + CA + MG + FE + P + CLD)$. As PROT is a contributing value for calculation of CHO or CHOT, PROT has not been included in the name of the descriptor. ASH calculated as sum of minerals has been indicated in the descriptor name. The term ***Carbohydrate, available, calculated by difference, organic acids not considered (ash as sum of minerals) [MI0186]*** (Proposal ID: MI1.3-C06) has been introduced.

The Swiss database requested a new term for Carbohydrate, total, calculated by difference (using individual minerals instead of ash) with a formula $CHOT = 100 - (PROT + FAT + WATER + ALC + NA + K + CA + MG + FE + P + CLD)$. ***Carbohydrate, total, calculated by difference, organic acids not considered (ash as sum of minerals) [MI0185]*** (Proposal ID: MI1.3-C07) has been introduced.

It would be useful to prefer generic terms for calculation of carbohydrates by difference to avoid introduction of terms with different variations based on definition of contributing components.

The Swiss database requested a term Carbohydrate, EC Nutrition Labelling Directive, calculated from available carbohydrate and polyols with a formula $CHO = SUGAR + STARCH + OLSAC + DEXTN + POLY$. In analogy with a term *Carbohydrate, available calculated from sugar, starch, oligosaccharides and matodextrins* [MI0182] the name for the newly introduced term has been inserted as ***Carbohydrate, available, calculated from sugar, starch, oligosaccharides, maltodextrins and polyols [MI0188]*** (Proposal ID: MI1.3-C08).

The term ***Carbohydrate, EC Nutrition Labelling Directive, calculated from available carbohydrate and polyols [MI0001]*** has been amended in the descriptor name and the Scope Note indicating currently valid Regulation (EU) 1169/2011. The amended name of the term is ***Carbohydrate, Regulation (EU) 1169/2011, calculated from available carbohydrate and polyols [MI0001]*** (Proposal ID: MI1.3-C11)

Sugars

The Dutch database requested a new term ***Sugar calculated by difference [MI0154]*** (Proposal ID: MI1.3-C12) with a formula $SUGAR = CHO - STARCH$

The Dutch database requested new terms for calculation of MNSAC and DISAC by simple summations.

Disaccharides calculated as sum of individual disaccharides [MI0155] (Proposal ID: MI1.3-C09) with a generic formula $DISAC = \text{sum of individual monosaccharides}$. The basis of calculation should be documented in the Method Specification.

Monosaccharides calculated as sum of individual monosaccharides [MI0156] (Proposal ID: MI1.3-C10) with a generic formula $MNSAC = \text{sum of individual monosaccharides}$. The basis of calculation should be documented in the Method Specification.

In this case, the contributing components are given as an explicit list. The Scope Note is provided by the following information: If the set of individual disaccharides used for calculation is modified from that in the formula given, the basis of the calculation should be documented in Method Specification.

The following new terms were added based on a request of the Dutch database:

Descriptor name	Code	Proposal ID
Glucose calculated by difference from total sugars minus individual mono and disaccharides	MI0164	MI1.3-C13
Galactose calculated by difference from total sugars minus individual mono and disaccharides	MI0165	MI1.3-C14
Fructose calculated by difference from total sugars minus individual mono and disaccharides	MI0166	MI1.3-C15
Lactose calculated by difference from total sugars minus individual mono and disaccharides	MI0167	MI1.3-C16
Maltose calculated by difference from total sugars minus individual mono and disaccharides	MI0168	MI1.3-C17
Saccharose calculated by difference from total sugars minus individual mono and disaccharides	MI0169	MI1.3-C18

Lipids

Fats

The following new method indicator terms were inserted on request of the Dutch database:

Descriptor name	Code	Proposal ID
Fat, unsaturated, total, calculated by difference from total fat minus total saturated fat	MI0251	MI1.3-L11
Fat, unsaturated, total, calculated as the sum of total monounsaturated, polyunsaturated and trans fat	MI0252	MI1.3-L13
Fat, saturated, total, calculated by difference	MI0253	MI1.3-L07
Fat, monounsaturated cis, total, calculated by difference	MI0254	MI1.3-L08
Fat, polyunsaturated, total, calculated by difference	MI0255	MI1.3-L09
Fat, trans, total, calculated by difference	MI0256	MI1.3-L10

Descriptor name	Code	Proposal ID
Fat, saturated, total, calculated from total saturated fatty acids	MI0257	MI1.3-L19
Fat, monounsaturated cis, total, calculated from total monounsaturated cis fatty acids	MI0258	MI1.3-L20
Fat, polyunsaturated, total, calculated from total polyunsaturated fatty acids	MI0259	MI1.3-L21
Fat, trans, total, calculated from total trans fatty acids	MI0260	MI1.3-L22

Fatty acids totals

The following new method indicator terms were inserted on request of the Dutch database:

Descriptor name	Code	Proposal ID
Fatty acids, total saturated, calculated from total saturated fat	MI0220	MI1.3-L15
Fatty acids, total monounsaturated, calculated from total monounsaturated fat	MI0221	MI1.3-L16
Fatty acids, total polyunsaturated, calculated from total polyunsaturated fat	MI0222	MI1.3-L17
Fatty acids, total trans, calculated from total trans fat	MI0223	MI1.3-L18
Fatty acids, total unsaturated, calculated by difference from total fatty acids and total saturated fatty acids	MI0224	MI1.3-L12

Method indicator terms for fatty acid totals are not given as an explicit list of contributing fatty acids in the Method Indicator Thesaurus. The formula is given as generic.

According to the previous update report (Unwin, I., et al., 2012, p. 15)) *“It may not be necessary of helpful to define separate methods terms for each totalled component, but to simply document the calculation method as Simple summation [MIR006]. At present, specific summation methods for totalling fatty acids usually are defined when alternative definitions are possible, for example the saturated fatty acids total including and excluding branched chain isomers, MI0209 and MI0208 respectively. It is proposed that in the cases where summations of fatty acid totals do not include alternative definitions, these are recorded using the generic term Simple summation [MIR006]. This is in accord with allowing the use of classification terms for indexing in appropriate circumstances”. “It may be used in indexing, but only when there is no more precise narrower term that is appropriate”* (Unwin, I., et al., 2012, p. 11).

The Dutch database requested new terms for fatty acid totals as simple summations with an explicit list of contributing fatty acids. The proposer Susanne Westenbrink *“can imagine that a generic formula containing all possible components is also possible if components are not made mandatory (we do not have all individual fatty acids for all foods)”*.

With respect to the above-mentioned discussion on sums of fatty acids, it was preferred to use generic formulae in terms proposed for sums of fatty acids. The Scope note has been provided by the following statement *„Detail of the calculation (i.e. contributing components) should be reported in the Method Specification”*:

Descriptor name	Code	Proposal ID
Fatty acids, total trans, calculated as sum of mono and polyunsaturated all trans isomers	MI0217	MI1.3-L01

Descriptor name	Code	Proposal ID
Fatty acids, total cis n-6 polyunsaturated, calculated as the sum cis n-6 polyunsaturated fatty acids	MI0218	MI1.3-L03
Fatty acids, total cis n-3 polyunsaturated, calculated as sum of cis n-3 polyunsaturated fatty acids	MI0219	MI1.3-L02
Fatty acids, unsaturated total, calculated as the sum of total monounsaturated, polyunsaturated and trans fatty acids	MI0225	MI1.3-L14

The Dutch database requested the following method indicator terms:

Proposal ID	Request	Component	Terms existing in the Method Indicator Thesaurus v1.3
MI1.3-L04	Fatty acids, saturated, calculated as the sum of individual fatty acids, including branched chain isomers	FASAT	Fatty acids, saturated, calculated as the sum of individual fatty acids, including branched chain isomers [MI0209]
MI1.3-L05	Fatty acids, monounsaturated, calculated as sum of individual fatty acids, cis isomers only	FAMSCIS	Fatty acids, monounsaturated, calculated as sum of individual fatty acids, cis isomers only [MI0210]
MI1.3-L06	Fatty acids, polyunsaturated, calculated as sum of individual fatty acids, including all isomers	FAPU	Fatty acids, polyunsaturated, calculated as sum of individual fatty acids, including all isomers [MI0214]

The proposed method indicator terms already exist in the Method Indicator Thesaurus v1.3. For this reason, the new terms have not been introduced.

Minor corrections – amendments

In the following method indicator terms the Additional Information has been amended. The Component Identifier for total fatty acids FATOT has been replaced by a correct code – FACID:

Descriptor name	code	Proposal ID
Fatty acid content calculated on fatty acid profile (%)	MI0201	MI1.3-L23
Fatty acids, total fatty acids calculated as sum of individual fatty acids	MI0202	MI1.3-L24
Fatty acids, total fatty acids calculated from total fat	MI0207	MI1.3-L25

The name of the descriptor ***Fatty acid content calculated on fatty acid profile (%) [MI0201]*** has been amended. Indication of (%) has been deleted as units and matrix units are documented elsewhere (Proposal ID: MI1.3-L27).

Additional information in the term ***Fatty acids, trans fatty acids by difference [MI0206]*** has been amended – a correct Component code FATRS has been inserted instead of FATRN. (Proposal ID: MI1.3-L26)

Minerals, water

Iron – haem- and non-haem

The Dutch database requested new method indicator terms for calculation of haem iron using a conversion factor. There is variability in literature data for percentage of haem iron in foods. Content of haem iron may change on cooking (Barris, A., 2012; Lombardi-Boccia, G., Martinez-Dominguez, B. & Aguzzi, A., 2002). A literature search is usually performed to calculate a general mean haem iron value (Balder, H.F. et al, 2006; Westenbrink S et al, 2005). The conversion factor should be documented as a method parameter. Method indicator terms for calculation of haem and non-haem iron by difference from total iron were also requested by the Dutch database. The following terms have been inserted:

Iron, haem, calculated from total iron using a conversion factor [MI0611] (Proposal ID:MI1.3-M01). Conversion factor should be documented as the Method Parameter.

Iron, non-haem, calculated by difference from total iron and haem iron [MI0612]
Proposal ID: MI1.3-M02)

Iron, haem, calculated by difference from total iron and non-haem iron [MI0613]
(Proposal ID: MI1.3-M05)

Salt equivalent

According to the Regulation (EU) 1169/2011 “*salt means the salt equivalent content calculated using the formula $\text{salt} = \text{sodium} \times 2.5$* ” (Regulation (EU) No 1169/2011). A corresponding new method indicator term ***Salt equivalent calculated from sodium [MI0120]*** (Proposal ID:MI1.3-M06) has been included.

Ash calculated

If an ash value is missing, a value can be estimated from a sum of minerals. Minerals in mcg have an insignificant contribution and therefore do not need to be taken into account (FAO/INFOODS, 2012a). A new method indicator term ***Ash calculated as sum of minerals [MI0614]*** (Proposal ID: MI1.3-M04) has been introduced.

Water

The Dutch database requested a new method indicator term for water content is calculated from protein, fat, available carbohydrates, dietary fibre, alcohol, ash and organic acids. A method indicator term ***Water by difference, organic acids considered [MI0144]*** (Proposal ID: MI1.3-M03) has been introduced.

Nitrogen compounds

Proteins

The Dutch database requested new method indicator terms for calculation of animal or plant proteins. The conversion factor should be documented as a method parameter. The following terms have been included:

Protein, animal, calculated from total protein using a conversion factor for each individual food [MI0125] (Proposal ID: MI1.3-N01)

Protein, plant, calculated by difference from total protein [MI0126] (Proposal ID: MI1.3-N02)

Protein, animal, calculated by difference from total protein [MI0128] (Proposal ID: MI1.3-N03)

Amino acids totals

The following new method indicator terms have been inserted for amino acid totals:

Amino acids, total eight essential, calculated as sum of individual amino acids [MI0671] (Proposal ID: MI1.3-N04)

Amino acids, total eight essential + HIS, calculated as sum of individual amino acids [MI0672] (Proposal ID: MI1.3-N05)

Amino acids, total eight essential + HIS and ARG, calculated as sum of individual amino acids [MI0673] (Proposal ID: MI1.3-N06)

Amino acids, total eight essential CYS + TYR, calculated as sum of individual amino acids [MI0674] (Proposal ID: MI1.3-N07)

Organic acids

A new method indicator term of ***Organic acids, total, calculated as the sum of individual organic acids [MI0641]*** (Proposal ID: MI1.3-O01) has been included on request of the Dutch database.

Organic acids, total are calculated from the sum of individual organic acids, i.e. that are neither fatty acids nor amino acids. A generic formula $OA = \text{sum of individual organic acids}$ has been introduced.

The basis of the calculation should be documented in Method Specification.

Vitamins

Two new method indicator terms for the calculation of Vitamin K2 and Vitamin K, total have been included on request of the Dutch database:

Vitamin K2 calculated as the sum of individual vitamin K2 isomers [MI0381] (Proposal ID: MI1.3-V01)

Vitamin K total calculated as the sum of vitamin K1 and vitamin K2 [MI0382] (Proposal ID: MI1.3-V02)

The Swiss database requested a new method indicator term for ***Vitamin E activity calculated from tocopherols and tocotrienols (DACH factors) [MI0371]*** [Proposal ID: MI1.3-V04]. Nutrition Societies of Germany, Austria and Switzerland (D, A, CH) have collaborated and issued Reference Values for nutrient intake (Deutsche Gesellschaft für Ernährung et al, 2016).

The following new method indicator terms have been included on request of the Dutch database:

Vitamin E activity calculated from individual tocopherols [MI0370] (Proposal ID: MI1.3-V05)

Vitamin D activity calculated from cholecalciferol and 25-hydroxy cholecalciferol (factors not applied) [MI0355] (Proposal ID: MI1.3-V03)

Analytical Method

Two new method indicator terms have been inserted on a request of the Dutch database:

Ultra-performance liquid chromatography [MI1138] (Proposal ID: MI1.3-Z01)

High performance anion exchange chromatography with pulsed amperometric detection [MI1139] (Proposal ID: MI1.3-Z02)

A list of components that are analysed by these two methods has been added to the Additional Information. The list is based on technical information of a producer of the devices and a search in the database Web of Knowledge.

A separate method indicator term was requested by the Dutch for analytical methods, for which no further information is known. A new method indicator term *** Analytical method not known [MI1401]*** (Proposal ID: MI1.3-Z04) has been included under broader term *Method not known* [MIR003]. The MI1401 is to be used when the method for obtaining data is known to be analysis, but no information about details is available, e.g. most of the time from older analyses, for which no further details were given or can no longer be retrieved.

Imputation

The EuroFIR Thesauri system for value documentation system includes a term **Imputed/estimated from related food [I]** in the Method Type Thesaurus. Inclusion of a new method indicator term ***Imputation of a component from one or more components from related food [MI0232]*** (Proposal ID: MI1.3-Z03) was requested by the Dutch database. The Scope Note for this term has been copied from term **Imputed/estimated from related food [I]** in the Method Type Thesaurus: This method indicator term is to be used “for a value imputed, estimated or copied from the value for a related food, including similar foods reported in other FCT sources. Further information identifying the related food should appear in the Remarks field of the Value record or in the Food table if many values for the food have been imputed from the same related food.”

Other EuroFIR Thesauri

Under this section update of the following EuroFIR Thesauri is documented.

The list of Proposals for update of the Other EuroFIR Thesauri is given in the attachment. Details about proposals are available on the EuroFIR Thesauri update page (see above).

Tree views of the other thesauri are given in the attachment.

EuroFIR Acquisition Type Thesaurus – preparation of the version 1.2

The Dutch database submitted a request for “internal documents and tools (internal excel overviews e.g. of recipes, software used internally) *“I did not find a good acquisition type. The same for Dutch cooking books or newsletters of food sectors. The reference is not an official document, not published, not peer reviewed, not scientific per se. Cooking books and newsletters are of course published, would these be authoritative documents?”*

Cook books and other recipe collections are often used in the food composition databases work. This kind of acquisition type has not been covered yet. A new term ***Recipe collection [R]*** (Proposal ID AT1.1-01) has been included for indexing collections of recipes, e.g. cook books, recipe databases or unpublished recipes with missing bibliographical information. Reference type should be documented using the EuroFIR Reference Type Thesaurus.

For the other requested options, the terms existing in the Acquisition Thesaurus terms have been recommended:

Internal documents	<i>Inhouse or affiliated laboratory</i> [O]
Excel or SW recipe calculation	<i>Values created within a host system</i> [S]
newsletters of food sectors	<i>Food label, product information</i> [L]

EuroFIR Matrix Unit Thesaurus – preparation of the version 1.4

The following new terms were included used in expression of the amount of amino acids (FAO/INFOODS, 2012b)

- *per g protein [P]*** (Proposal ID MU1.3-01)
- *per 100g protein [PP]*** (Proposal ID MU1.3-02)
- *per 100g total amino acids [A]*** (Proposal ID MU1.3-01)

DFI requested missing volume matrix units, like cm³ as used in density, e.g. g/ cm³, synonyms *per dm³ food volume* (Proposal ID: MU1.3-03) and *per cm³ food volume* (Proposal ID: MU1.3-04) have been inserted to the following terms ***per l food volume [VL]*** and ***per ml food volume [VM]***, respectively.

DFI requested two NT under ***per 100g total fatty acids [F]***: “Fatty acids can be expressed as g FA/100 g FA (or %), but the 100 g FA can be either sum of known (identified) and unknown (unidentified) FAs – or the sum of only known (identified) FAs. Therefore, two NTs are needed under ***per 100g total fatty acids [F]***:

- *per 100 g fatty acid (identified and unidentified) [FIU]*** for use when the sum (100 g) of fatty acids include both known (identified) and unknown (unidentified) fatty acids (Proposal ID: MU1.3-06)

per 100 fatty acid (identified only) [FI] for use when the sum (100 g) of fatty acids include only known (identified) fatty acids (Proposal ID: MU1.3-07)

DFI recommended to change the scope note for ***per 100g total fatty acids [F]***: It should be: Use when it is not known, whether the sum (100 g) of fatty acids include known (identified and unknown (unidentified) fatty acids or not. (Proposal ID: MU1.3-05)

EuroFIR Unit Thesaurus – preparation of the version 1.2

Similarly, to the approach in the National Cancer Institute (NCI) Thesaurus (https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=16.12d&ns=NCI_Thesaurus&code=C48505&key=n1884574668&b=1&n=null), a synonym dm³ (Proposal ID: UT1.1-01) has been included to a term ***litre [l]***. In analogy a synonym cm³ (Proposal ID: UT1.1-02) has been included to a term ***milligram [mg]***. (https://ncit.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&version=16.12d&ns=NCI_Thesaurus&code=C28254&key=840583621&m=1&b=1&n=null)

EuroFIR Reference Type Thesaurus

The Dutch database asked for a term covering values that are logically deducted. *“These include mainly logical zero's, but also some other deductions”. Lot of values in the FCDBs are based on different kind of deductions or estimations, e. g. estimating a logical zero, calculation of values according to internal algorithms of a dataset. For all these values a reference type E has been currently used. Susanne Westenbrink: “the problem with E (else/other) for me is that it is very vague and the THS indicates that we should think about a more precise code. I think your proposal to use D is fine. It will enable us to indicate that we do know where the value comes from”*

A term ***Deduction [D]*** has been proposed for data referenced to be obtained by any type of a logical deduction including estimation of logical zero, estimation or calculation of values.

However, a feedback from Jayne Ireland (DFI) pointed out that introduction of such a reference type is incorrect. *“REFERENCE TYPE is used to characterize the physical form of a Reference, i.e. whether it is a book, a report or an internet site. REFERENCE TYPE has nothing to do with how a value was created!!!*

*This proposal has confused Reference Type with METHOD TYPE thesaurus, which already has a term for logical deduction! “ – term ***Estimated according to logical deduction [U]***.*

Out of this reason the term “Deduction [D] has not been included into the Reference Type Thesaurus. This thesaurus has been thus not changed and the version 1.1 remains to be its current version.

EuroFIR Method Type Thesaurus – preparation of the version 1.2

The Dutch database submitted a proposal for the following reference type terms: *aggregation of contributing non-analytical values* for aggregation of e.g., literature values, label values or any other type of values and a term *aggregation of contributing analytical and non-analytical values*. Use for aggregation of analytical values with other values, e.g., literature values, label values or any other type of values.

A discussion on this is documented bellow.

It is necessary to define what is considered (or agreed) under analytical and non-analytical values:

Rand et al. , 1991 defined analytic and non-analytic values as follows:

"Analytic data are values based on laboratory values, including those obtained by well-defined conversion factors and straightforward formulae. Thus, protein data calculated by multiplying nitrogen content by a constant are considered analytic data. By contrast, non-analytic data are values which involve either no chemical analyses (e.g., using a value of zero for the cholesterol in an orange because it is a plant product) or the use of analytic data with varying amounts of estimation involved (e.g., the calculation of the vitamin content of a stew from the vitamin content of its raw ingredients). Non-analytic data are often, but not always, less accurate than analytic data.

The terms "calculated" and "imputed" are often used for data that are not analytic, "calculated" implying more trustworthiness than "imputed". While many people distinguish between these two terms, there is little agreement on their precise meaning. To avoid conflict, we use the term "estimated" for those data which are not strictly laboratory values."

Susanne Westenbrink, the proposer from the Dutch database:

"I did not use this definition from Rand. For me analytical values are values that we received from a laboratory , with sufficient information on analytical method, samples etc. So lab report but also values from scientific publications would fit in this approach. Of course values from labels and from foreign food comp tables could match to this approach, but often these data sources do not give enough information to list these values as analytical values. For example when we have some values from several food comp tables we would like to aggregate them. Or if we have several values from one or more manufacturers we would like to aggregate them to publish a mean value. It would not be code G, as this refers to several food id's. It would not be code D as this refers to analytical results. Our values could be analytical, but we are not sure. I think if no information is available about the procedure of obtaining the data, we will not use the values for aggregation. So the first discussion is: what is the definition of an analytical value? And the second is: do we need an additional method type code for aggregated values. To be discussed in a broader group."

According to Anders Møller (DFI):

"an analytical value is derived with instruments and methods to separate, identify, and quantify matter – no recalculation from one component to another; i.e. an analytical value is a value for an analysed component, e.g. N and DRYMAT are analytical – PROT and WATER are calculated values"

DFI recommends to create a new descriptor ***Aggregation of contributing values [AGR]***, as upper level descriptor and move the following 2 descriptors:

Aggregated from contributing food items [G]

Aggregation of contributing analytical results [D]

down as NT to the new descriptor, AGR with a Scope Note: Use for Selected Value based on an aggregation of values, including values of different origin and methods. Use narrower terms when appropriate.

The Scope Note of the term ***Aggregated from contributing food items [G]*** has been updated to make it more understandable.

DFI recommends to introduce several levels to the Method Type Thesaurus to make it more “readable”. Generic terms as weaker/more generic are recommended to upper level descriptors. The more specific terms are to be moved down as NT. The proposed structure is given in a tree view of this thesaurus in the attachment. (proposal ID: MT1.1-04).

DFI requested to cover an issue of “missing values” in recipe calculations in the Method Type Thesaurus. Two new terms have been added as NT to the term ***Calculated as recipe [R]*** based on suggestion of DFI:

Calculated as recipe, no missing value(s) [RN] for use when the value is calculated by means of a recipe and all ingredients are contributing to the final value (proposal ID: MT1.1-05).

Calculated as recipe, missing value(s) for one or more ingredients [RX] for use when the value is calculated by means of a recipe and one or more ingredients are not contributing (“missing values”) to the final value (proposal ID: MT1.1-06).

EuroFIR Value Type Thesaurus – preparation of the version 1.2

The UK database requested a new Value type term to indicate that the blank value in a DB for which compilation work has not been performed for this component/food combination at all.

A new term ***not processed[NP]*** has been introduced for use a blank Selected value, if compilation work has not been performed for this component/food combination at all. This value type indicates that the value is missing because a compilation work for the value has not been performed at all for the selected food/component combination, e.g. neither searches nor attempts for obtaining the value have been conducted. (Proposal ID: VT1.1-01)

The French database requested a term for initial values that are below quantification limit (LOQ) and for values that are below a LOD or a LOQ in the case that “*we don’t know which one, but it is necessarily a LOQ or a LOD*”. For the latter case a term ***trace [T]*** is not suitable because a value is available.

Anders Møller from DFI recommended to create a new broader term ***below limits of detection or quantification [BLX]*** (Proposal ID: VT1.1-02) with the following SN: “*Use when it is known that the concentration of the component in a food sample is below the lowest quantifiable concentration of an analyte (measurand) and it is NOT known, if it is also below the limit of detection (LOD).*” The following terms have been included as narrower term (NT) under [BLX]:

A new term ***below limit of quantification [BQ]*** has been created for use when it is known that the concentration of the component in a food sample is below the lowest concentration of an analyte that can be determined with acceptable precision and accuracy under stated conditions of the test and thus it is below the limit of quantification (LOQ). (Proposal ID: VT1.1-03)

The current descriptor name of the term “below detection limit [BL]” has been changed to ***below limit of detection [BL]***. This name corresponds better to common denomination of LOD. [BL] has been included as NT under [BLX] (Proposal ID: VT1.1-04)

Cooperation with INFOODS

EuroFIR and INFOODS decided to collaborate on component identifiers and to share their changes and additions prior their publication (Charrondiere & Unwin, 2011)

The representative of INFOODS Ruth Charrondière, has been informed about the following 12 new component terms in the upcoming 1.4 version of the EuroFIR Component Thesaurus. These terms have not been covered in the INFOODS list of component identifiers (tag names) yet (INFOODS, 2017).

Code	Descriptor name
ERYTHL	erythritol
F15:1CNX	fatty acid 15:1 cis unknown position
F18:1CN3B	fatty acid 18:1 (n<4) cis
F19:0-4ME	fatty acid 19:0 (pristanic acid)
F21:5CN3	fatty acid 21:5 n-3 all-cis
FATUNSAT	fat, unsaturated, total
FAUNSAT	fatty acids, total unsaturated
NACLAD	salt, added
P2O5	phosphorus pentoxide
SALATR	salatrim
THIACL	thiamin chloride
THIACHLCL	thiamin chloride hydrochloride

Summary

This report informs about update of the EuroFIR Thesauri performed in the period 2015-February 2017, which is presented as “Update wave 2016”.

The Update wave 2016 comprised:

Addition of one thesaurus into the set and maintenance of EuroFIR thesauri – EuroFIR Food Classification Thesaurus (version LanguaLTM 2014-1.0, published 2016-04-08)

Preparation of new versions of the following EuroFIR Thesauri:

Component Thesaurus	version 1.4
Method Indicator Thesaurus	version 1.4
Acquisition Type Thesaurus	version 1.2
Unit Thesaurus	version 1.4
Method Type Thesaurus	version 1.2
Value Type Thesaurus	version 1.2

The new versions were prepared on the basis of 138 requests for updating of EuroFIR thesauri.

Component Thesaurus	27 requests
Method Indicator Thesaurus	85 requests
Other Thesauri	26 requests

The requests were evaluated considering, first of all, specifics of individual thesauri, principles of EuroFIR system for data processing and preference of generic terms.

A system for processing requests has been introduced and described on the EuroFIR Thesauri update page, which presents also lists of requests, proposals of terms and drafts of terms prior release of new versions of individual thesauri.

Editing of the working (draft) versions of the thesauri was performed by editors using the EuroFIR eThesaurus Manager tool. Working versions of thesauri are not available publicly.

The FoodComp group LinkedIn account has been available for discussion about requests and drafts of terms, but this channel was ranked as not convenient. An e-mail discussion group will be more suitable.

The representative of INFOODS, Ruth Charrondière, has been informed about the following 12 new component terms in the upcoming 1.4 version of the EuroFIR Component Thesaurus. This is in agreement with principles of collaboration between EuroFIR and INFOODS in sharing information about new component identifiers prior their publication in the EuroFIR Component Thesaurus and the INFOODS Food Component Tagnames list, respectively.

The Update wave 2016 has been finalised. The new versions of the EuroFIR thesauri are ready for publication. The update wave 2017 can be opened.

The main aim of activities focused on update and management of the EuroFIR thesauri is to maintain them as standardised vocabularies of terms agreed within EuroFIR community for an internationally harmonised food composition data processing, utilization and exchange of data for different types of applications on national and international level.

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Attachment

In this attachment, proposals for update of the EuroFIR Thesauri are listed.

Update of current thesauri can comprise the following procedures:

Addition of a **NEW** term

In a case a term is not available in a particular thesaurus.

AMENDment of a term

Amendment comprise changes within an existing term.

INACTIVation of a term (for obsolete terms)

Some of the terms may become obsolete due to changes in food law or development of knowledge. These terms are not deleted from a Thesaurus, but they are marked by a note that “This term is only kept for backward compatibility. DO NOT USE for new indexing”

A List of proposals for update of the EuroFIR Component Thesaurus v1.3

(For details see the EuroFIR Thesauri update page <http://www.eurofir.org/welcome-to-the-ordinary-members-page/the-eurofir-thesauri/eurofir-thesauri-update/>)

Proposal ID	Type of change	Code	descriptor
CT1.3-C01	NEW	ERYTHL	erythritol
CT1.3-C02	AMEND	POLYL	polyols, total
CT1.3-L01	AMEND	FATPU	fat, polyunsaturated, total
CT1.3-L02	AMEND	FATSAT	fat, saturated, total
CT1.3-L03	AMEND	FATTRN	fat, trans, total
CT1.3-L04	AMEND	FATMU	fat, monounsaturated, total
CT1.3-L05	AMEND	FATMUCIS	fat, monounsaturated cis, total
CT1.3-L06	NEW	F18:1CN3B	fatty acid 18:1 (n<4) cis
CT1.3-L07	NEW	F15:1CNX	fatty acid 15:1 cis unknown position
CT1.3-L08	NEW	F21:5CN3	fatty acid 21:5 n-3 all-cis
CT1.3-L09	NEW	F19:0-4ME	fatty acid 19:0 (pristanic acid)
CT1.3-L10	NEW	FATUNSAT	fat, unsaturated, total
CT1.3-L11	NEW	FAUNSAT	fatty acids, total unsaturated
CT1.3-L12	NEW	SALATR	salatrim
CT1.3-L13	NEW	GRP_FATTAG	fat expressed as triacyl glycerol (GRP_FATTAG) (FATPU, FATSAT, FATTRN, FATMU, FATMUCIS, FATUNSAT moved as NT to GRP_FATTAG)
CT1.3-L14	AMEND	FATPU, FATSAT, FATTRN, FATMU, FATMUCIS – amendment of SN in these terms	
CT1.3-M01	NEW	P2O5	phosphorous pentoxide
CT1.3-M02	NEW	NACLAD	salt, added
CT1.3-N01	NEW	AAE10A	amino acids, total essential; eight essential amino acids + HIS and ARG
CT1.3-N02	NEW	AAE9	amino acids, total essential; eight essential amino acids + HIS
CT1.3-V01	AMEND	THIA	thiamin

Proposal ID	Type of change	Code	descriptor
CT1.3-V02	NEW	THIACLHCL	thiamin chloride hydrochloride
CT1.3-V03	NEW	THIACL	thiamin chloride
CT1.3-V04	NEW	THIA_1P	thiamin(1+) ion
CT1.3-Z01	AMEND	GRP_PROX	Proximates group
CT1.3-Z02	AMEND	DRYMAT	dry matter

A List of proposals for update of the EuroFIR Method Indicator Thesaurus v1.3

(For details see the EuroFIR Thesauri update page <http://www.eurofir.org/welcome-to-the-ordinary-members-page/the-eurofir-thesauri/eurofir-thesauri-update/>)

Proposal ID	Type of change	code	descriptor
MI1.3-C01	AMEND	MI0131	Carbohydrate, total, calculated by difference, generic, organic acids not considered
MI1.3-C02	AMEND	MI0184	Carbohydrate, available, calculated by difference, generic, organic acids not considered
MI1.3-C03	NEW	MI0189	Carbohydrate, available, calculated by difference, generic, organic acids considered
MI1.3-C04	NEW	MI0187	Carbohydrate, total, calculated by difference, generic, organic acids considered
MI1.3-C05	AMEND	MI0183	Carbohydrate, available, calculated by difference, organic acids not considered, (nitrogen*6.25, AOAC fibre, ash as sum of minerals)
MI1.3-C06	NEW	MI0186	Carbohydrate, available, calculated by difference, organic acids not considered (ash as sum of minerals)
MI1.3-C07	NEW	MI0185	Carbohydrate, total, calculated by difference, organic acids not considered (ash as sum of minerals)
MI1.3-C08	NEW	MI0188	Carbohydrate, available, calculated from sugar, starch, oligosaccharides, maltodextrins and polyols
MI1.3-C09	NEW	MI0155	Disaccharides calculated as sum of individual disaccharides
MI1.3-C10	NEW	MI0156	Monosaccharides calculated as sum of individual monosaccharides
MI1.3-C11	AMEND	MI0001	Carbohydrate, Regulation (EU) 1169/2011, calculated from available carbohydrate and polyols
MI1.3-C12	NEW	MI0154	Sugar calculated by difference
MI1.3-C13	NEW	MI0164	Glucose calculated by difference from total sugars minus individual mono and disaccharides
MI1.3-C14	NEW	MI0165	Galactose calculated by difference from total sugars minus individual mono and disaccharides
MI1.3-C15	NEW	MI0166	Fructose calculated by difference from total sugars minus individual mono and disaccharides
MI1.3-C16	NEW	MI0167	Lactose calculated by difference from total sugars minus individual mono and disaccharides
MI1.3-C17	NEW	MI0168	Maltose calculated by difference from total sugars minus individual mono and disaccharides
MI1.3-C18	NEW	MI0169	Saccharose calculated by difference from total sugars minus individual mono and disaccharides
MI1.3-E01	AMEND	MI0111	Energy calculated according to Atwater (kJ, general factors)
MI1.3-E02	AMEND	MI0114	Energy calculated according to Regulation (EU) 1169/2011 (kJ)
MI1.3-E03	AMEND	MI0115	Energy calculated according to Regulation (EU) 1169/2011 (kcal)

Proposal ID	Type of change	code	descriptor
MI1.3-E04	NEW	MI0118	Energy calculated according to Regulation (EU) 1169/2011 (kJ, NCF protein exception)
MI1.3-E05	NEW	MI0119	Energy calculated according to Regulation (EU) 1169/2011 (kcal, NCF protein exception)
MI1.3-E06	INACTIV	MI0112	Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kcal, NCF protein exception)
MI1.3-E07	INACTIV	MI0108	Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kcal)
MI1.3-E08	INACTIV	MI0107	Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ)
MI1.3-E09	INACTIV	MI0113	Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ, NCF protein exception)
MI1.3-E10	INACTIV	MI0109	Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ, polydextrose exception)
MI1.3-E11	AMEND	MI0103	Energy calculated according to Codex Alimentarius (kcal)
MI1.3-E12	AMEND	MI0104	Energy calculated according to Codex Alimentarius (kJ)
MI1.3-E13	NEW	MI0711	Energy calculated according to Swiss Standard (kJ)
MI1.3-E14	NEW	MI0712	Energy calculated according to Swiss Standard (kcal)
MI1.3-L01	NEW	MI0217	Fatty acids, total trans, calculated as sum of mono and polyunsaturated all trans isomers
MI1.3-L02	NEW	MI0219	Fatty acids, total cis n-3 polyunsaturated, calculated as sum of cis n-3 polyunsaturated fatty acids
MI1.3-L03	NEW	MI0218	Fatty acids, total cis n-6 polyunsaturated, calculated as the sum cis n-6 polyunsaturated fatty acids
MI1.3-L04	No change - the term has been already available		Fatty acids, saturated, calculated as the sum of individual fatty acids, including branched chain isomers [MI0209]
MI1.3-L05	No change - the term has been already available		Fatty acids, monounsaturated, calculated as sum of individual fatty acids, cis isomers only [MI0210]
MI1.3-L06	No change - the term has been already available		Fatty acids, polyunsaturated, calculated as sum of individual fatty acids, including all isomers [MI0214]
MI1.3-L07	NEW	MI0253	Fat, saturated, total, calculated by difference
MI1.3-L08	NEW	MI0254	Fat, monounsaturated cis, total, calculated by difference
MI1.3-L09	NEW	MI0255	Fat, polyunsaturated, total, calculated by difference
MI1.3-L10	NEW	MI0256	Fat, trans, total, calculated by difference
MI1.3-L11	NEW	MI0251	Fat, unsaturated, total, calculated by difference from total fat minus total saturated fat
MI1.3-L12	NEW	MI0224	Fatty acids, total unsaturated, calculated by difference from total fatty acids and total saturated fatty acids
MI1.3-L13	NEW	MI0252	Fat, unsaturated total, calculated as the sum of total monounsaturated, polyunsaturated and trans fat
MI1.3-L14	NEW	MI0225	Fatty acids, unsaturated total, calculated as the sum of total monounsaturated, polyunsaturated and trans fatty acids

Proposal ID	Type of change	code	descriptor
MI1.3-L15	NEW	MI0220	Fatty acids, total saturated, calculated from total saturated fat
MI1.3-L16	NEW	MI0221	Fatty acids, total monounsaturated, calculated from total monounsaturated fat
MI1.3-L17	NEW	MI0222	Fatty acids, total polyunsaturated, calculated from total polyunsaturated fat
MI1.3-L18	NEW	MI0223	Fatty acids, total trans, calculated from total trans fat
MI1.3-L19	NEW	MI0257	Fat, saturated, total, calculated from total saturated fatty acids
MI1.3-L20	NEW	MI0258	Fat, monounsaturated cis, total, calculated from total monounsaturated cis fatty acids
MI1.3-L21	NEW	MI0259	Fat, polyunsaturated, total, calculated from total polyunsaturated fatty acids
MI1.3-L22	NEW	MI0260	Fat, trans, total, calculated from total trans fatty acids
MI1.3-L23	AMEND	MI0201	Fatty acid content calculated on fatty acid profile (%)
MI1.3-L24	AMEND	MI0202	Fatty acids, total fatty acids calculated as sum of individual fatty acids
MI1.3-L25	AMEND	MI0207	Fatty acids, total fatty acids calculated from total fat
MI1.3-L26	AMEND	MI0206	Fatty acids, trans fatty acids by difference
MI1.3-L27	AMEND	MI0201	Fatty acid content calculated on fatty acid profile
MI1.3-M01	NEW	MI0611	Iron, haem, calculated from total iron using a conversion factor
MI1.3-M02	NEW	MI0612	Iron, non-haem, calculated by difference from total iron and haem iron
MI1.3-M03	NEW	MI0144	Water by difference, organic acids considered
MI1.3-M04	NEW	MI0614	Ash calculated as sum of minerals
MI1.3-M05	NEW	MI0613	Iron, haem, calculated by difference from total iron and non-haem iron
MI1.3-M06	NEW	MI0120	Salt equivalent calculated from sodium
MI1.3-N01	NEW	MI0125	Protein, animal, calculated from total protein using a conversion factor for each individual food
MI1.3-N02	NEW	MI0126	Protein, plant, calculated by difference from total protein
MI1.3-N03	NEW	MI0128	Protein, animal, calculated by difference from total protein
MI1.3-N04	NEW	MI0671	Amino acids, total eight essential, calculated as sum of individual amino acids
MI1.3-N05	NEW	MI0672	Amino acids, total eight essential + HIS, calculated as sum of individual amino acids
MI1.3-N06	NEW	MI0673	Amino acids, total eight essential + HIS and ARG, calculated as sum of individual amino acids
MI1.3-N07	NEW	MI0674	Amino acids, total eight essential + CYS + TYR, calculated as sum of individual amino acids
MI1.3-O01	NEW	MI0641	Organic acids, total, calculated as the sum of individual organic acids
MI1.3-V01	NEW	MI0381	Vitamin K2 calculated as the sum of individual vitamin K2 isomers

Proposal ID	Type of change	code	descriptor
MI1.3-V02	NEW	MI0382	Vitamin K total calculated as the sum of vitamin K1 and vitamin K2
MI1.3-V03	NEW	MI0355	Vitamin D activity calculated from cholecalciferol and 25-hydroxy cholecalciferol (factors not applied)
MI1.3-V04	NEW	MI0371	Vitamin E activity calculated from tocopherols and tocotrienols (DACH factors)
MI1.3-V05	NEW	MI0370	Vitamin E activity calculated from individual tocopherols
MI1.3-Z01	NEW	MI1138	Ultra-performance liquid chromatography
MI1.3-Z02	NEW	MI1139	High performance anion exchange chromatography with pulsed amperometric detection
MI1.3-Z03	NEW	MI0232	Imputation of a component from one or more components from related food
MI1.3-Z04	NEW	MI1401	Analytical method not known

A list of proposals for update of OTHER EuroFIR Thesauri

(For details see the EuroFIR Thesauri update page <http://www.eurofir.org/welcome-to-the-ordinary-members-page/the-eurofir-thesauri/eurofir-thesauri-update/>)

Refereed Thesaurus	Proposal ID	Type of change	Code	descriptor
Acquisition Type v1.1	AT1.1-01	NEW	R	Recipe collection
Matrix Unit v1.3	MU1.3-01	NEW	P	per g protein
	MU1.3-03	NEW	PP	per 100g protein
	MU1.3-02	NEW	A	per 100g total amino acids
	MU1.3-03	AMEND	VM	per ml food volume
	MU1.3-04	AMEND	VL	per l food volume
	MU1.3-05	AMEND	F	Per 100g total fatty acids ([FIU] and [FI] as NT terms)
	MU1.3-06	NEW	FIU	per 100 g fatty acid (identified and unidentified)
	MU1.3-07	NEW	FI	per 100 fatty acid (identified only)
Unit Thesaurus v1.1	UT1.1-01	AMEND	l	litre
	UT1.1-02	AMEND	ml	millilitre
Method Type Thesaurus v1.1	MT1.1-01	Discussion needed	aggregation of contributing non-analytical values	
	MT1.1-02	Discussion needed	aggregation of contributing analytical and non-analytical values	
	MT1.1-03	NEW	AGR	Aggregation of contributing values ([G] and [D] moved as NT to [AGR])
	MT1.1-04	AMEND	Rearrangement of the THS structure generic AG, CG, IG as BT, specific terms moved down as NT	
	MT1.1-05	NEW	RN	Calculated as recipe, no missing value(s)
	MT1.1-06	NEW	RX	Calculated as recipe, missing value(s) for one or more ingredients
Reference Type Thesaurus v1.1	RT1.1-01	Deduction [D] – not included – REFERENCE TYPE covers physical for of a reference, not a method how the value was obtained		
Value Type Thesaurus v1.1	VT1.1-01	NEW	NP	not processed
	VT1.1-02	NEW	BLX	below limits of detection or quantification
	VT1.1-03	NEW	BQ	below limit of quantification
	VT1.1-04	AMEND	BL	below limit of detection

EuroFIR Food Classification Thesaurus – version LanguaL™ 2014-1.0 – a tree view

This Thesaurus has been **NEW**ly added to the set of EuroFIR Thesauri

- BEVERAGE (NON-MILK) (EUROFIR) [A0840]
 - ALCOHOLIC BEVERAGE (EUROFIR) [A0846]
 - ALCOHOLIC MIXED DRINK (EUROFIR) [A0851]
 - BEER OR BEER-LIKE BEVERAGE (EUROFIR) [A0847]
 - CIDER, PERRY OR SIMILAR DRINK (EUROFIR) [A0848]
 - LIQUEUR OR SPIRITS (EUROFIR) [A0850]
 - WINE, FORTIFIED WINE OR WINE-LIKE BEVERAGE (EUROFIR) [A0849]
 - JUICE OR NECTAR (EUROFIR) [A0841]
 - NON ALCOHOLIC BEVERAGE (EUROFIR) [A0842]
 - COFFEE, TEA, COCOA OR INFUSION (EUROFIR) [A0845]
 - SOFT DRINK (EUROFIR) [A0843]
 - WATER (EUROFIR) [A0844]
- EGG OR EGG PRODUCT (EUROFIR) [A0790]
 - EGG DISH (EUROFIR) [A0792]
 - FRESH OR PROCESSED EGG (EUROFIR) [A0791]
- FAT OR OIL (EUROFIR) [A0805]
 - BUTTER OR OTHER ANIMAL FAT (EUROFIR) [A0808]
 - BUTTER (EUROFIR) [A0809]
 - FISH OILS (EUROFIR) [A0811]
 - OTHER ANIMAL FATS (EUROFIR) [A0810]
 - MARGARINE OR LIPID OF MIXED ORIGIN (EUROFIR) [A0807]
 - VEGETABLE FAT OR OIL (EUROFIR) [A0806]
- FRUIT OR FRUIT PRODUCT (EUROFIR) [A0833]
 - PROCESSED FRUIT PRODUCT (EUROFIR) [A0834]
- GRAIN OR GRAIN PRODUCT (EUROFIR) [A0812]
 - BREAD AND SIMILAR PRODUCTS (EUROFIR) [A0817]
 - BREAD PRODUCT (EUROFIR) [A0820]
 - LEAVENED BREAD (EUROFIR) [A0818]
 - UNLEAVENED BREAD, CRISP BREAD AND RUSK (EUROFIR) [A0819]
 - BREAKFAST CEREAL (EUROFIR) [A0816]
 - CEREAL BAR (EUROFIR) [A1330]
 - CEREAL OR CEREAL-LIKE MILLING PRODUCTS AND DERIVATIVES (EUROFIR) [A0813]
 - FINE BAKERY WARE (EUROFIR) [A0821]
 - BISCUITS, SWEET AND SEMI-SWEET (EUROFIR) [A1331]
 - PANCAKE OR WAFFLE (EUROFIR) [A1297]
 - PASTRIES AND CAKES (EUROFIR) [A1332]
 - CAKE (EUROFIR) [A1333]
 - PIE, SWEETENED (EUROFIR) [A1334]
 - PASTA AND SIMILAR PRODUCTS (EUROFIR) [A0815]
 - RICE OR OTHER GRAIN (EUROFIR) [A0814]
 - SAVOURY CEREAL DISH (EUROFIR) [A0822]
 - PASTA DISH (EUROFIR) [A1204]
 - PIE, UNSWEETENED, OR PIZZA (EUROFIR) [A1296]
- MEAT OR MEAT PRODUCT (EUROFIR) [A0793]
 - MEAT ANALOGUE (EUROFIR) [A0800]
 - MEAT DISH (EUROFIR) [A0799]

- OFFAL (EUROFIR) [A0796]
- POULTRY MEAT (EUROFIR) [A0795]
- PRESERVED MEAT (EUROFIR) [A0797]
- RED MEAT (EUROFIR) [A0794]
- SAUSAGE OR SIMILAR MEAT PRODUCT (EUROFIR) [A0798]
- MILK, MILK PRODUCT OR MILK SUBSTITUTE (EUROFIR) [A0778]
 - CHEESE (EUROFIR) [A0784]
 - CURED CHEESE (EUROFIR) [A0785]
 - PROCESSED CHEESE (EUROFIR) [A0787]
 - UNCURED CHEESE (EUROFIR) [A0786]
 - FERMENTED MILK PRODUCT (EUROFIR) [A0783]
 - FROZEN DAIRY DESSERT (EUROFIR) [A0789]
 - IMITATION MILK PRODUCTS (EUROFIR) [A0788]
 - MILK (EUROFIR) [A0779]
 - CREAM (EUROFIR) [A0782]
 - LIQUID MILK (EUROFIR) [A0780]
 - PROCESSED MILK (EUROFIR) [A0781]
- MISCELLANEOUS FOOD PRODUCT (EUROFIR) [A0852]
 - PREPARED FOOD PRODUCT (EUROFIR) [A0861]
 - DESSERT (EUROFIR) [A0864]
 - DESSERT SAUCE (EUROFIR) [A0863]
 - EGG DISH (EUROFIR) [A0792]
 - MEAT DISH (EUROFIR) [A0799]
 - POTATO DISH (EUROFIR) [A0830]
 - PREPARED SALAD (EUROFIR) [A0866]
 - PULSE DISH (EUROFIR) [A0832]
 - SANDWICH (EUROFIR) [A1203]
 - SANDWICH FILLING (EUROFIR) [A0867]
 - SAVOURY CEREAL DISH (EUROFIR) [A0822]
 - PASTA DISH (EUROFIR) [A1204]
 - PIE, UNSWEETENED, OR PIZZA (EUROFIR) [A1296]
 - SAVOURY SAUCE (EUROFIR) [A0862]
 - SAVOURY SNACK (EUROFIR) [A0868]
 - SEAFOOD DISH (EUROFIR) [A0804]
 - SOUP (EUROFIR) [A0865]
 - VEGETABLE DISH (EUROFIR) [A0828]
 - MUSHROOM DISH (EUROFIR) [A1335]
 - SPICE, CONDIMENT OR OTHER INGREDIENT (EUROFIR) [A0853]
 - BAKING INGREDIENT (EUROFIR) [A0854]
 - CONDIMENT (EUROFIR) [A0858]
 - CHUTNEY OR PICKLE (EUROFIR) [A0860]
 - DRESSING, MAYONNAISE (EUROFIR) [A0859]
 - FLAVOURING OR ESSENCE (EUROFIR) [A0855]
 - HERB OR SPICE (EUROFIR) [A0857]
 - SEASONING OR EXTRACT (EUROFIR) [A0856]
 - NUT, SEED OR KERNEL (EUROFIR) [A0823]
 - NUT OR SEED PRODUCT (EUROFIR) [A0824]
 - PRODUCT FOR SPECIAL NUTRITIONAL USE OR DIETARY SUPPLEMENT (EUROFIR) [A0869]
 - DIETARY SUPPLEMENT (EUROFIR) [A0870]
 - FOOD FOR SPECIAL NUTRITIONAL USE (EUROFIR) [A0871]
 - FOOD FOR INFANTS (EUROFIR) [A0873]

- FOOD FOR WEIGHT REDUCTION (EUROFIR) [A1205]
- MEDICAL FOOD (EUROFIR) [A0872]
- SPORTS FOOD (EUROFIR) [A1206]
- SEAFOOD OR RELATED PRODUCT (EUROFIR) [A0801]
 - FISH OR RELATED ORGANISM (EUROFIR) [A0802]
 - SEAFOOD PRODUCT (EUROFIR) [A0803]
 - SEAFOOD DISH (EUROFIR) [A0804]
- SUGAR OR SUGAR PRODUCT (EUROFIR) [A0835]
 - CHOCOLATE OR CHOCOLATE PRODUCT (EUROFIR) [A0839]
 - JAM OR MARMALADE (EUROFIR) [A0837]
 - NON-CHOCOLATE CONFECTIONERY OR OTHER SUGAR PRODUCT (EUROFIR) [A0838]
 - SUGAR, HONEY OR SYRUP (EUROFIR) [A0836]
- VEGETABLE OR VEGETABLE PRODUCT (EUROFIR) [A0825]
 - PULSE OR PULSE PRODUCT (EUROFIR) [A0831]
 - PULSE DISH (EUROFIR) [A0832]
 - STARCHY ROOT OR POTATO (EUROFIR) [A0829]
 - POTATO DISH (EUROFIR) [A0830]
 - VEGETABLE (EXCLUDING POTATO) (EUROFIR) [A0826]
 - VEGETABLE PRODUCT (EUROFIR) [A0827]
 - CHUTNEY OR PICKLE (EUROFIR) [A0860]
 - VEGETABLE DISH (EUROFIR) [A0828]
 - MUSHROOM DISH (EUROFIR) [A1335]

EuroFIR Method Component Thesaurus version 1.4- a tree view

Carbohydrate components [GRP_CHO]

carbohydrate [CHO]

carbohydrate, total [CHOT]

carbohydrates, unspecified [CHOU]

Fibre [GRP_FIB]

fibre, crude [FIBC]

fibre, total dietary [FIBT]

fibre, water-insoluble [FIBINS]

fibre, water-soluble [FIBSOL]

Oligosaccharides [GRP_OLIGO]

alpha galactosides [GALSD]

dextrins [DEXTN]

maltotriose [MALTRS]

oligosaccharides, available [OLSAC]

raffinose [RAFS]

stachyose [STAS]

Polysaccharide analogues [GRP_PSAN]

chitin [CHITIN]

Polysaccharides [GRP_PSAC]

non-starch polysaccharides [NSP]

beta glucans [GLUCNB]

cellulose [CELLU]

hemicellulose [HEMCEL]

inulin [INULN]

lignin [LIGN]

pectin [PECT]

polysaccharides, non-cellulosic [PSACNC]

polysaccharides, non-cellulosic, water-insoluble [PSACNCI]

polysaccharides, non-cellulosic, water-soluble [PSACNCS]

polyuronic acids [PURAC]

Starch [GRP_STAR]

amylopectin [AMYP]

amylose [AMYS]

dextrins [DEXTN]

glycogen [GLYC]

polydextrose [POLYDEXS]

starch, resistant [STARES]

starch, resistant RS1 [STARES1]

starch, resistant RS2 [STARES2]

starch, resistant RS3 [STARES3]

starch, resistant RS4 [STARES4]

starch, total [STARCH]

Sugar alcohols [GRP_SUGOH]

NEW erythritol [ERYTHL]

inositol [INOTL]

inositol diphosphate [INOTLP2]

inositol monophosphate [INOTLP1]

inositol pentaphosphate [INOTLP5]

inositol tetraphosphate [INOTLP4]

inositol triphosphate [INOTLP3]

isomalt [ISOMALT]

lactitol [LACTL]

maltitol [MALTL]

mannitol [MANTL]

- phytic acid [PHYTAC]
 - polyols, total [POLYL]
 - sorbitol [SORTL]
 - xylitol [XYLTL]
- Sugars [GRP_SUGAR]
 - Disaccharides [GRP_DISAC]
 - disaccharides, total [DISAC]
 - lactose [LACS]
 - maltose [MALS]
 - sucrose [SUCS]
 - trehalose [TRES]
 - Monosaccharides [GRP_MNSAC]
 - arabinose [ARAS]
 - fructose [FRUS]
 - galactose [GALS]
 - glucose [GLUS]
 - mannose [MANS]
 - monosaccharides, total [MNSAC]
 - ribose [RIBS]
 - xylose [XYLS]
 - sugar, added [SUGAD]
 - sugar, natural [SUGAN]
 - Sugars in fibre [GRP_SUGFB]
 - hexoses in dietary fibre [FIBHEX]
 - pentoses in dietary fibre [FIBPEN]
 - sugars, total [SUGAR]
- Food additives [GRP_FADD]
 - acesulfam-K [ACESK]
 - aspartam [ASPM]
 - benzoic acid [BENAC]
 - cyclamate [CYCL]
 - isomalt [ISOMALT]
 - sodium-saccharin [SACCNA]
 - sorbic acid [SORAC]
- Food properties and measures [GRP_FOOD]
 - chemical score [CHEMSC]
 - density/specific gravity [DEN]
 - dry matter [DRYMAT]
 - edible portion [EDIBLE]
 - fatty acid conversion factor [FACF]
 - nitrogen conversion factor [NCF]
 - pH [PH]
 - solids, total [SOLID]
 - usual portion [PORTION]
 - waste [WASTE]
- Lipid components [GRP_LIPD]
 - Carotenoids [GRP_CART]
 - alpha-carotene [CARTA]
 - alpha-cryptoxanthin [CRYPXA]
 - astaxanthin [ASTAX]
 - beta-carotene [CARTB]
 - beta-carotene, cis [CARTBCIS]
 - beta-carotene, total [CARTBTOT]
 - beta-cryptoxanthin [CRYPXB]
 - canthaxanthin [CTX]
 - capsanthin [CAPSAN]

carotenoids, total [CAROTENS]
 cryptoxanthins [CRYPX]
 gamma-carotene [CARTG]
 lutein [LUTN]
 lutein plus zeaxanthine [LUTEZEAX]
 lycopene [LYCPN]
 zeaxanthin [ZEA]

Fats [GRP_FAT]

- NEW** fat expressed as triacyl glycerol (TAG) [GRP_FATTAG]
- AMEND** fat, monounsaturated cis, total [FATMUCIS]
- AMEND** fat, monounsaturated, total [FATMU]
- AMEND** fat, polyunsaturated, total [FATPU]
- AMEND** fat, saturated, total [FATSAT]
- AMEND** fat, trans, total [FATTRN]
- NEW** fat, unsaturated, total [FATUNSAT]
- fat, animal [FATAN]
- fat, plant [FATPL]
- fat, total [FAT]
- fat, unknown origin [FATUNK]
- NEW** salatrims [SALATR]

Fatty acids [GRP_FA]

- Fatty acids, general [GRP_FAGEN]
 - fatty acid 16:unidentified [F16:UN]
 - fatty acid 22:unidentified [F22:UN]
 - fatty acid, unidentified [FAUN]
 - fatty acids, total [FACID]
 - fatty acids, total C12 and above [F12:A]
 - fatty acids, total cis [FACIS]
 - fatty acids, total cis n-3 [FACN3]
 - fatty acids, total cis n-6 [FACN6]
 - fatty acids, total cis n-9 [FACN9]
 - fatty acids, total essential [FAESS]
 - fatty acids, total free [FAFRE]
 - fatty acids, total n-3 [FAN3]
 - fatty acids, total n-6 [FAN6]
 - fatty acids, total n-9 [FAN9]
 - fatty acids, total trans [FATRS]
 - fatty acids, total trans n-3 [FATN3]
 - fatty acids, total trans n-6 [FATN6]
 - fatty acids, total trans n-9 [FATN9]
 - NEW** fatty acids, total unsaturated [FAUNSAT]
 - fatty acids, total, calculated as triacylglycerol equivalents [FACIDCTG]
- Monounsaturated fatty acids [GRP_FAMS]
 - fatty acid 10:1 [F10:1]
 - fatty acid 10:1 (caproic acid) [F10:1CN1]
 - fatty acid 10:1 cis [F10:1CIS]
 - fatty acid 10:1 trans [F10:1TRS]
 - fatty acid 12:1 [F12:1]
 - fatty acid 12:1 (lauric acid) [F12:1CN3]
 - fatty acid 12:1 cis [F12:1CIS]
 - fatty acid 12:1 trans [F12:1TRS]
 - fatty acid 14:1 [F14:1]
 - fatty acid 14:1 cis [F14:1CIS]
 - fatty acid 14:1 n-5 cis (myristoleic acid) [F14:1CN5]
 - fatty acid 14:1 n-5 trans (myristelaidic acid) [F14:1TN5]
 - fatty acid 14:1 n-9 cis [F14:1CN9]

- fatty acid 14:1 trans [F14:1TRS]
- fatty acid 15:1 (pentadecenoic acid) [F15:1]
 - NEW** fatty acid 15:1 cis unknown position [F15:1CNX]
 - fatty acid 15:1 n-8 cis [F15:1CN8]
 - fatty acid 15:1 n-9 cis [F15:1CN9]
- fatty acid 16:1 [F16:1]
 - fatty acid 16:1 cis [F16:1CIS]
 - fatty acid 16:1 n-5 cis [F16:1CN5]
 - fatty acid 16:1 n-7 cis (palmitoleic acid) [F16:1CN7]
 - fatty acid 16:1 n-7 trans [F16:1TN7]
 - fatty acid 16:1 n-9 cis [F16:1CN9]
 - fatty acid 16:1 n-9 trans [F16:1TN9]
 - fatty acid 16:1 remainder [F16:1R]
 - fatty acid 16:1 trans [F16:1TRS]
- fatty acid 16:1 iso [F16:1I]
- fatty acid 17:1 (heptadecenoic acid) [F17:1]
 - fatty acid 17:1 cis [F17:1CIS]
 - fatty acid 17:1 n-8 cis [F17:1CN8]
 - fatty acid 17:1 n-9 cis [F17:1CN9]
- fatty acid 18:1 (octadecenoic acid) [F18:1]
 - NEW** fatty acid 18:1 (n<4) cis [F18:1CN3B]
 - fatty acid 18:1 cis [F18:1CIS]
 - fatty acid 18:1 cis, remainder [F18:1CR]
 - fatty acid 18:1 n-10 cis [F18:1CN10]
 - fatty acid 18:1 n-10 trans [F18:1TN10]
 - fatty acid 18:1 n-11 cis [F18:1CN11]
 - fatty acid 18:1 n-11 trans [F18:1TN11]
 - fatty acid 18:1 n-12 cis [F18:1CN12]
 - fatty acid 18:1 n-12 trans [F18:1TN12]
 - fatty acid 18:1 n-13 cis [F18:1CN13]
 - fatty acid 18:1 n-2 trans [F18:1TN2]
 - fatty acid 18:1 n-3 cis [F18:1CN3]
 - fatty acid 18:1 n-3 trans [F18:1TN3]
 - fatty acid 18:1 n-4 cis [F18:1CN4]
 - fatty acid 18:1 n-4 trans [F18:1TN4]
 - fatty acid 18:1 n-5 cis [F18:1CN5]
 - fatty acid 18:1 n-5 trans [F18:1TN5]
 - fatty acid 18:1 n-6 cis [F18:1CN6]
 - fatty acid 18:1 n-6 trans [F18:1TN6]
 - fatty acid 18:1 n-7 cis [F18:1CN7]
 - fatty acid 18:1 n-7 trans [F18:1TN7]
 - fatty acid 18:1 n-8 cis [F18:1CN8]
 - fatty acid 18:1 n-8 trans [F18:1TN8]
 - fatty acid 18:1 n-9 cis (oleic acid) [F18:1CN9]
 - fatty acid 18:1 n-9 trans (elaidic acid) [F18:1TN9]
 - fatty acid 18:1 remainder [F18:1R]
 - fatty acid 18:1 total trans [F18:1TRS]
- fatty acid 18:1 iso [F18:1I]
- fatty acid 18:1 OH n-7 (ricinoleic acid) [F18:1N9O]
- fatty acid 19:1 (nonadecenoic acid) [F19:1]
- fatty acid 20:1 (eicosenoic acid) [F20:1]
 - fatty acid 20:1 cis [F20:1CIS]
 - fatty acid 20:1 n-11 cis [F20:1CN11]
 - fatty acid 20:1 n-11 trans [F20:1TN11]
 - fatty acid 20:1 n-7 cis [F20:1CN7]
 - fatty acid 20:1 n-9 cis [F20:1CN9]

- fatty acid 20:1 n-9 trans [F20:1TN9]
 - fatty acid 20:1 trans [F20:1TRS]
- fatty acid 22:1 (docosenoic acid) [F22:1]
 - fatty acid 22:1 cis [F22:1CIS]
 - fatty acid 22:1 n-11 cis (cetoleic acid) [F22:1CN11]
 - fatty acid 22:1 n-7 [F22:1N7]
 - fatty acid 22:1 n-9 cis (erucic acid) [F22:1CN9]
 - fatty acid 22:1 n-9 trans (brassicidic acid) [F22:1TN9]
 - fatty acid 22:1 trans [F22:1TRS]
- fatty acid 24:1 (tetracosenoic acid) [F24:1]
 - fatty acid 24:1 cis [F24:1CIS]
 - fatty acid 24:1 n-9 cis [F24:1CN9]
 - fatty acid 24:1 n-9 trans [F24:1TN9]
 - fatty acid 24:1 trans [F24:1TRS]
- fatty acids, monounsaturated, cis, remainder [FAMSCXR]
- fatty acids, monounsaturated, remainder [FAMSXR]
- fatty acids, monounsaturated, total cis [FAMSCIS]
- fatty acids, monounsaturated, total trans [FAMSTRS]
- fatty acids, monounsaturated, trans, remainder [FAMSTXR]
- fatty acids, total monounsaturated [FAMS]
- Polyunsaturated fatty acids [GRP_FAPU]
 - fatty acid 16:2 [F16:2]
 - fatty acid 16:2 n-4 cis,cis [F16:2CN4]
 - fatty acid 16:3 [F16:3]
 - fatty acid 16:3 n-3 all-cis [F16:3CN3]
 - fatty acid 16:4 [F16:4]
 - fatty acid 16:4 n-3 all-cis [F16:4CN3]
 - fatty acid 18:2 [F18:2]
 - fatty acid 18:2 cis + trans [F18:2CT]
 - fatty acid 18:2 conjugated [F18:2CON]
 - fatty acid 18:2 conjugated, c9,t11 [F18:2C9T11]
 - fatty acid 18:2 conjugated, t10,c12 [F18:2T10C12]
 - fatty acid 18:2 n-6 cis,cis [F18:2CN6]
 - fatty acid 18:2 n-6 trans,trans [F18:2TTN6]
 - fatty acid 18:2 n-9 cis,cis [F18:2CN9]
 - fatty acid 18:2 remainder [F18:2R]
 - fatty acid 18:2 trans [F18:2TRS]
 - fatty acid 18:2 trans + cis [F18:2TC]
 - fatty acid 18:2, n-6 or n-9 not known [F18:2CNX]
 - fatty acid 18:2 iso [F18:2ISO]
 - fatty acid 18:3 [F18:3]
 - fatty acid 18:3 n-3 [F18:3N3]
 - fatty acid 18:3 n-3 all-cis [F18:3CN3]
 - fatty acid 18:3 n-3 all-trans [F18:3TTN3]
 - fatty acid 18:3 n-6 [F18:3N6]
 - fatty acid 18:3 n-6 all-cis [F18:3CN6]
 - fatty acid 18:3 trans [F18:3TRS]
 - fatty acid 18:4 [F18:4]
 - fatty acid 18:4 n-3 [F18:4N3]
 - fatty acid 18:4 n-3 all-cis [F18:4CN3]
 - fatty acid 19:3 [F19:3]
 - fatty acid 20:2 (eicosadienoic acid) [F20:2]
 - fatty acid 20:2 n-6 [F20:2N6]
 - fatty acid 20:2 n-6 cis,cis [F20:2CN6]
 - fatty acid 20:2 n-6 trans,trans [F20:2TN6]
 - fatty acid 20:2 trans,trans [F20:2TT]

fatty acid 20:3 (eicosatrienoic acid) [F20:3]
 fatty acid 20:3 n-3 [F20:3N3]
 fatty acid 20:3 n-3 all-cis [F20:3CN3]
 fatty acid 20:3 n-6 [F20:3N6]
 fatty acid 20:3 n-6 all-cis [F20:3CN6]
 fatty acid 20:3 n-9 all-cis [F20:3CN9]
 fatty acid 20:3 trans [F20:3TRS]
 fatty acid 20:4 (eicosatetraenoic acid) [F20:4]
 fatty acid 20:4 n-3 [F20:4N3]
 fatty acid 20:4 n-3 all-cis [F20:4CN3]
 fatty acid 20:4 n-6 [F20:4N6]
 fatty acid 20:4 n-6 all-cis [F20:4CN6]
 fatty acid 20:4 trans [F20:4TRS]
 fatty acid 20:5 (eicopentaenoic acid) [F20:5]
 fatty acid 20:5 n-3 [F20:5N3]
 fatty acid 20:5 n-3 all-cis [F20:5CN3]
 fatty acid 20:5 n-6 [F20:5N6]
 fatty acid 21:5 (heneicosapentaenoic acid) [F21:5]
 fatty acid 21:5 n-3 (heneicosapentaenoic acid) [F21:5N3]
 NEW fatty acid 21:5 n-3 all-cis [F21:5CN3]
 fatty acid 22:2 (docosadienoic acid) [F22:2]
 fatty acid 22:2 n-3 cis,cis [F22:2CN3]
 fatty acid 22:2 n-6 cis,cis [F22:2CN6]
 fatty acid 22:2 trans [F22:2TRS]
 fatty acid 22:3 [F22:3]
 fatty acid 22:3 n-3 all-cis [F22:3CN3]
 fatty acid 22:4 (docosatetraenoic acid) [F22:4]
 fatty acid 22:4 n-3 [F22:4N3]
 fatty acid 22:4 n-6 [F22:4N6]
 fatty acid 22:4 n-6 all-cis [F22:4CN6]
 fatty acid 22:5 (docosapentaenoic acid) [F22:5]
 fatty acid 22:5 n-3 [F22:5N3]
 fatty acid 22:5 n-3 all-cis [F22:5CN3]
 fatty acid 22:5 n-6 [F22:5N6]
 fatty acid 22:5 n-6 all-cis [F22:5CN6]
 fatty acid 22:5 trans [F22:5TRS]
 fatty acid 22:6 (docosahexaenoic acid) [F22:6]
 fatty acid 22:6 n-3 [F22:6N3]
 fatty acid 22:6 n-3 all-cis [F22:6CN3]
 fatty acid 22:6 trans [F22:6TRS]
 fatty acid 24:2 (tetracosadienoic acid) [F24:2]
 fatty acid 24:2 n-6 [F24:2N6]
 fatty acid 24:2 n-6 cis,cis [F24:2CN6]
 fatty acid 24:6 (tetracosahexaenoic acid) [F24:6]
 fatty acid 24:6 n-3 all-cis [F24:6CN3]
 fatty acids, cis polyunsaturated, remainder [FAPUCR]
 fatty acids, polyunsaturated, cis, remainder [FAPUCXR]
 fatty acids, polyunsaturated, other (= PUFA-linoleic-linolenic) [FAPUOT]
 fatty acids, polyunsaturated, remainder [FAPUXR]
 fatty acids, polyunsaturated, total C20 [F20:P]
 fatty acids, polyunsaturated, total C22 [F22:P]
 fatty acids, polyunsaturated, total cis [FAPUCIS]
 fatty acids, polyunsaturated, total cis methylene-interrupted [FAPUCISN]
 fatty acids, polyunsaturated, total cis n-3 [FAPUCN3]
 fatty acids, polyunsaturated, total cis n-6 [FAPUCN6]
 fatty acids, polyunsaturated, total long-chain [FAPULC]

fatty acids, polyunsaturated, total n-3 [FAPUN3]
 fatty acids, polyunsaturated, total n-3 fish [FAPUN3FI]
 fatty acids, polyunsaturated, total n-3 long-chain [FAPUN3LC]
 fatty acids, polyunsaturated, total n-3 vegetable [FAPUN3VE]
 fatty acids, polyunsaturated, total n-6 [FAPUN6]
 fatty acids, polyunsaturated, total n-9 [FAPUN9]
 fatty acids, polyunsaturated, total trans [FAPUTRS]
 fatty acids, polyunsaturated, total trans n-3 [FAPUTN3]
 fatty acids, polyunsaturated, total trans n-6 [FAPUTN6]
 fatty acids, polyunsaturated, trans remainder [FAPUTXR]
 fatty acids, total polyunsaturated [FAPU]
 Saturated fatty acids [GRP_FASAT]
 fatty acid 10:0 (capric acid) [F10:0]
 fatty acid 11:0 [F11:0]
 fatty acid 12:0 (lauric acid) [F12:0]
 fatty acid 13:0 (tridecanoic acid) [F13:0]
 fatty acid 13:0 iso (isotridecanoic acid) [F13:0I]
 fatty acid 14:0 (myristic acid) [F14:0]
 fatty acid 14:0 anteiso [F14:0AI]
 fatty acid 14:0 iso [F14:0I]
 fatty acid 15:0 (pentadecylic acid) [F15:0]
 fatty acid 15:0 + 17:0 [F15+17]
 fatty acid 15:0 anteiso [F15:0AI]
 fatty acid 15:0 iso [F15:0I]
 fatty acid 16:0 (palmitic acid) [F16:0]
 fatty acid 16:0 anteiso [F16:0AI]
 fatty acid 16:0 iso [F16:0I]
 fatty acid 17:0 (margaric acid) [F17:0]
 fatty acid 17:0 anteiso [F17:0AI]
 fatty acid 17:0 iso [F17:0I]
 fatty acid 18:0 (stearic acid) [F18:0]
 fatty acid 18:0 anteiso [F18:0AI]
 fatty acid 18:0 dihydroxy [F18:0DO]
 fatty acid 18:0 iso [F18:0I]
NEW fatty acid 19:0 (pristanic acid) [F19:0-4ME]
 fatty acid 19:0 [F19:0]
 fatty acid 20:0 (arachidic acid) [F20:0]
 fatty acid 20:0 iso [F20:0I]
 fatty acid 21:0 [F21:0]
 fatty acid 22:0 (behenic acid) [F22:0]
 fatty acid 23:0 (tricosanoic acid) [F23:0]
 fatty acid 24:0 (lignoceric acid) [F24:0]
 fatty acid 25:0 [F25:0]
 fatty acid 26:0 [F26:0]
 fatty acid 4:0 (butyric acid) [F4:0]
 fatty acid 5:0 [F5:0]
 fatty acid 6:0 (caproic acid) [F6:0]
 fatty acid 7:0 [F7:0]
 fatty acid 8:0 (caprylic acid) [F8:0]
 fatty acid 9:0 [F9:0]
 fatty acids 12:0 - 16:0 [F12-16:0]
 fatty acids 4:0 - 10:0 [F4-10:0]
 fatty acids 4:0 - 8:0 [F4-8:0]
 fatty acids, saturated, remainder [FASATXR]
 fatty acids, total saturated [FASAT]
 fatty acids, trans saturated, remainder [FASATR]

- glycerol [GLYRL]
- Phospho- and glycolipids [GRP_PGLIP]
 - glycolipids, total [GLYLIP]
 - phosphatidyl choline (lecithin) [CHLNP]
 - phospholipids, total [PHOLIP]
 - plasmalogen [PLSGN]
 - sphingolipid [SPHLIP]
- Retinoids [GRP_RET]
 - 11-cis-retinaldehyde [RETALD11]
 - 13-cis retinol [RETOL13]
 - 13-cis-retinoic acid [RETINAC13]
 - all-trans retinol [RETOLAT]
 - dehydroretinol [RETOLDH]
 - retinaldehyde [RETALD]
 - retinoic acid [RETINAC]
 - retinol (preformed vitamin A) [RETOL]
- Sterols [GRP_STERL]
 - 24-methylcholest-7-erol [CHOLM]
 - avenasterol, total [AVEDT]
 - brassicasterol [BRASTR]
 - campesterol, total [CAMT]
 - cholesterol [CHORL]
 - delta 5-avenasterol (delta 5-avenastanol) [AVED5]
 - delta 5-campesterol (delta 5-campestenol) [CAMD5]
 - delta 7 stigmasterol [STID7]
 - delta 7,9,11-stigmastadienol [STID7911]
 - delta 7-avenasterol (delta 7-avenastanol) [AVED7]
 - delta 7-campesterol (delta 7-campestenol) [CAMD7]
 - fucosterol [FUCSTR]
 - isofucosterol [FUCSTR28]
 - phytosterols, total (total plant sterols) [PHYSTR]
 - sitosterol [SITSTR]
 - spinasterol [SPISTR]
 - sterols, other [STEROTH]
 - sterols, total [STERT]
 - stigmasterol [STGSTR]
- Minerals and inorganic components [GRP_MIN]
 - carbon dioxide, free [CO2F]
 - Macroelements [GRP_MINMAC]
 - bromide [BRD]
 - calcium [CA]
 - chloride [CLD]
 - iron, haem [HAEM]
 - iron, non-haem [NHAEM]
 - iron, total [FE]
 - magnesium [MG]
 - phosphorus [P]
 - NEW** phosphorus pentoxide [P2O5]
 - potassium [K]
 - sodium [NA]
 - sulphur [S]
 - salt [NACL]
 - NEW** salt, added [NACLAD]
 - Trace elements [GRP_MINTR]
 - aluminium [AL]
 - antimony [SB]

arsenic [AS]
barium [BA]
bismuth [BI]
boron [B]
cadmium [CD]
caesium [CS]
chromium [CR]
cobalt [CO]
copper [CU]
fluoride [FD]
gold [AU]
iodide [ID]
lanthanum [LA]
lead [PB]
lithium [LI]
manganese [MN]
mercury [HG]
molybdenum [MO]
nickel [NI]
rubidium [RB]
selenium, total [SE]
silicon [SI]
silver [AG]
strontium [SR]
tin [SN]
titanium [TI]
vanadium [V]
zinc [ZN]

Nitrogen components [GRP_NITR]

Amines and related components [GRP_AM]

cadaverine [CADAVT]
choline [CHOLN]
creatine/creatinine [CREATN]
dopamine [DOPN]
histamine [HISTN]
phenylethylamine [PHETN]
putrescine [PUTRSC]
serotonin [SEROTN]
spermidine [SPERDN]
spermine [SPERN]
tryptamine [TRYPN]
tyramine [TYRA]

Amino acids [GRP_AA]

alanine [ALA]
amino acids, total aromatic [AAA]
amino acids, total essential; eight essential amino acids [AAE8]
amino acids, total essential; eight essential amino acids + CYS and TYR [AAE10B]
NEW amino acids, total essential; eight essential amino acids + HIS [AAE9]
NEW amino acids, total essential; eight essential amino acids + HIS and ARG [AA10EA]
amino acids, total essential; unknown which aa are included [AAE-]
amino acids, total sulphur-containing [AAS]
amino acids, total; precise definition not specified [AAT-]
arginine [ARG]
asparagine [ASN]
aspartic acid [ASP]
cysteine [CYSTE]

- cystine [CYS]
- glutamic acid [GLU]
- glutamine [GLN]
- glycine [GLY]
- histidine [HIS]
- hydroxylysine [HYL]
- hydroxyproline [HYP]
- isoleucine [ILE]
- leucine [LEU]
- lysine [LYS]
- lysine, available [LYSAVL]
- methionine [MET]
- phenylalanine [PHE]
- proline [PRO]
- serine [SER]
- taurine [TAU]
- threonine [THR]
- tryptophan [TRP]
- tyrosine [TYR]
- valine [VAL]
- ammonia [AMMON]
- nitrates [NITRA]
- nitrites [NITRI]
- Nitrogen heterocycle components [GRP_NHET]
 - piperine [PIPN]
 - purines [PURN]
 - adenine [ADEN]
 - caffeine [CAFFN]
 - theobromine [THEBRN]
 - uric acid [URAC]
- nitrogen, amino acid [NAA]
- nitrogen, non protein [NNP]
- nitrosamines, total [NITRN]
- Proteins [GRP_PROT]
 - albumin [ALBU]
 - casein [CASN]
 - collagen [COLG]
 - gluten [GLUTN]
 - protein, animal [PROTAN]
 - protein, plant [PROTPL]
 - protein, unknown origin [PROTUNK]
- Organic acids [GRP_OA]
 - acetic acid [ACEAC]
 - aconitic acid [ACONAC]
 - adipic acid [ADIAC]
 - alpha-ketoglutaric acid [GLUAKAC]
 - benzoic acid [BENAC]
 - caffeic acid [CAFAC]
 - chlorogenic acid [CHLRAC]
 - citric acid [CITAC]
 - diketogulonic acid [GULDKAC]
 - D-lactic acid [LACACD]
 - ferulic acid [FERAC]
 - formic acid [FORAC]
 - fumaric acid [FUMAC]
 - galacturonic acid [GALAAC]

- gallic acid [GALLAC]
- gluconic acid [GLUCAC]
- glycolic acid [GLYCLAC]
- glyoxalic acid [GLYOXAC]
- isocitric acid [ISOCAC]
- lactic acid [LACAC]
- L-lactic acid [LACACL]
- malic acid [MALAC]
- malonic acid [MALONAC]
- organic acids, total [OA]
- oxalic acid [OXALAC]
- oxaloacetic acid [OXACAC]
- para-hydroxybenzoic acid [PARHBAC]
- phytic acid [PHYTAC]
- pimelic acid [PIMAC]
- propionic acid [PROPAC]
- pyroglutamic acid [PYROGAC]
- pyruvic acid [PYRAC]
- quinic acid [QUINAC]
- quinolinic acid [QUINLAC]
- salicylic acid [SALAC]
- shikimic acid [SHIKAC]
- sorbic acid [SORAC]
- succinic acid [SUCAC]
- tartaric acid [TARAC]
- Phenolic components [GRP_PHNL]
 - Capsaicinoids [GRP_CAPSA]
 - capsaicin [CAPSA]
 - Flavonoids [GRP_FLAV]
 - Anthocyanidins and anthocyanins [GRP_ANTCYN]
 - anthocyanidins, total [ANTCYAN]
 - cyanidin [CYAD]
 - delphinidin [DELPH]
 - malvidin [MALVIDIN]
 - peonidin [PEONIDIN]
 - petunidin [PETUNIDIN]
 - Flavanols [GRP_FLAVANOL]
 - catechin [CATEC]
 - catechins, total [CATECT]
 - epicatechin [EPICATEC]
 - epicatechin-3-gallate [EPICATECG3]
 - epigallocatechin [EPICATEGC]
 - galocatechin [GALCATEGC]
 - procyanidins, total [PROCYA]
 - Flavanones [GRP_FLAVANE]
 - hesperetin [HESPT]
 - hesperidin [HESPD]
 - naringenin [NARING]
 - naringin [NARIN]
 - narirutin [NARIR]
 - Flavones [GRP_FLAVONE]
 - apigenin [APIGEN]
 - luteolin [LUTEOL]
 - tangeretin [TANGER]
 - Flavonols [GRP_FLAVONOL]
 - kaempferol [KAEMF]

- myricetin [MYRIC]
 - quercetin [QUERCE]
 - rutin [RUTIN]
- Phytoestrogens [GRP_PHYTG]
 - coumestrol [COUMEST]
 - Isoflavonoids [GRP_ISOFLAV]
 - biochanin A [BIOCHA]
 - daidzein [DDZEIN]
 - formononetin [FORMO]
 - genistein [GNSTEIN]
 - glycitein [GLYCTEIN]
 - isoflavonoids, total [ISOFLVND]
 - Lignans [GRP_LIGN]
 - lignans, total [LIGNANS]
 - matairesinol [MATAIRES]
 - secoisolariciresinol [SECORES]
- tannin [TANNIN]
- AMEND** Proximates [GRP_PROX]
 - alcohol [ALC]
 - ash [ASH]
 - AMEND** carbohydrate [CHO]
 - AMEND** carbohydrate, total [CHOT]
 - energy, gross [ENERA]
 - energy, total metabolisable [ENERC]
 - AMEND** dry matter [DRYMAT]
 - AMEND** fat, total [FAT]
 - AMEND** fibre, total dietary [FIBT]
 - nitrogen, total [NT]
 - AMEND** organic acids, total [OA]
 - AMEND** polyols, total [POLYL]
 - protein, total [PROT]
 - AMEND** sugar, added [SUGAD]
 - AMEND** sugars, total [SUGAR]
 - water [WATER]
- Vitamins [GRP_VIT]
 - Fat soluble vitamins [GRP_VITFAT]
 - Vitamin A and related components [GRP_VITA]
 - all-trans retinol equivalents [RETOLTEQ]
 - beta-carotene equivalents (provitamin A carotenoids) [CARTBEQ]
 - carotene, total (vitamin A precursors) [CAROT]
 - Carotenoids [GRP_CART]
 - alpha-carotene [CARTA]
 - alpha-cryptoxanthin [CRYPXA]
 - astaxanthin [ASTAX]
 - beta-carotene [CARTB]
 - beta-carotene, cis [CARTBCIS]
 - beta-carotene, total [CARTBTOT]
 - beta-cryptoxanthin [CRYPXB]
 - canthaxanthin [CTX]
 - capsanthin [CAPSAN]
 - carotenoids, total [CAROTENS]
 - cryptoxanthins [CRYPX]
 - gamma-carotene [CARTG]
 - lutein [LUTN]
 - lutein plus zeaxanthine [LUTEZEAX]
 - lycopene [LYCPN]

- zeaxanthin [ZEA]
- carotenoids, provitamin A, excluding beta-carotene [CAROTPAXB]
- Retinoids [GRP_RET]
 - 11-cis-retinaldehyde [RETALD11]
 - 13-cis retinol [RETOL13]
 - 13-cis-retinoic acid [RETINAC13]
 - all-trans retinol [RETOLAT]
 - dehydroretinol [RETOLDH]
 - retinaldehyde [RETALD]
 - retinoic acid [RETINAC]
 - retinol (preformed vitamin A) [RETOL]
- vitamin A acetate [VITAACT]
- vitamin A palmitate [VITAPAL]
- vitamin A; retinol equiv from retinol and carotenoid activities [VITA]
- Vitamin D components [GRP_VITD]
 - 25-hydroxycholecalciferol [CHOCALOH]
 - 25-hydroxyergocalciferol [ERGSTROH]
 - cholecalciferol [CHOCAL]
 - ergocalciferol [ERGCAL]
 - ergosterol [ERGSTR]
 - vitamin D [VITD]
- Vitamin E components [GRP_VITE]
 - alpha-tocopherol [TOCPHA]
 - alpha-tocotrienol [TOCTRA]
 - beta-tocopherol [TOCPHB]
 - beta-tocotrienol [TOCTRB]
 - delta-tocopherol [TOCPHD]
 - delta-tocotrienol [TOCTRD]
 - gamma-tocopherol [TOCPHG]
 - gamma-tocotrienol [TOCTRG]
 - tocopherols, total [TOCPHT]
 - tocotrienols, total [TOCTRT]
 - vitamin E; alpha-tocopherol equiv from E vitamers activities [VITE]
- Vitamin K components [GRP_VITK]
 - dihydro-vitamin K-1 [VITK1D]
 - Menaquinone-10 [MK10]
 - Menaquinone-11 [MK11]
 - Menaquinone-12 [MK12]
 - Menaquinone-13 [MK13]
 - Menaquinone-4 [MK4]
 - Menaquinone-5 [MK5]
 - Menaquinone-6 [MK6]
 - Menaquinone-7 [MK7]
 - Menaquinone-8 [MK8]
 - Menaquinone-9 [MK9]
 - vitamin K, total [VITK]
 - vitamin K-1 [VITK1]
 - vitamin K-2 [VITK2]
- Water soluble vitamins [GRP_VITH2O]
 - biotin [BIOT]
 - Folate components [GRP_FOL]
 - 10-formyldihydrofolate [FOLH2FM10]
 - 10-formylfolic acid [FOLFM10]
 - 5-formyltetrahydrofolic acid [FOLH4FM5]
 - 5-methyldihydrofolic acid [FOLH2ME5]
 - 5-methyltetrahydrofolate [FOLH4ME5]

dihydrofolic acid [FOLH2]
folate, bound [FOLB]
folate, food [FOLFD]
folate, free [FOLFRE]
folate, total [FOL]
folic acid, synthetic [FOLAC]
tetrahydrofolate [FOLH4]
Vitamin B components [GRP_VITB]
2-(1-hydroxyethyl)thiamin [THIAHE]
niacin equivalents from tryptophan [NIATRP]
niacin equivalents, total [NIAEQ]
niacin, available [NIAAVL]
niacin, preformed [NIA]
nicotinamide [NICOTAM]
nicotinic acid [NICOTAC]
pantothenic acid (vitamin B5) [PANTAC]
pyridoxal [PYRXL]
pyridoxamine [PYRXM]
pyridoxine [PYRXN]
riboflavin [RIBF]
AMEND thiamin [THIA]
NEW thiamin chloride [THIACL]
NEW thiamin chloride hydrochloride [THIACHLCL]
NEW thiamin(1+) ion [THIA_1P]
vitamin B-12 [VITB12]
vitamin B-6, total [VITB6]
Vitamin C components [GRP_VITC]
L-ascorbic acid [ASCL]
L-dehydroascorbic acid [ASCDL]
vitamin C [VITC]

EuroFIR Method Indicator Thesaurus version 1.4 – a tree view

Analytical method [MI001]

Ashing [MI1001]

Dry ashing [MI1018]

Microwave ashing [MI1196]

Wet ashing [MI1197]

Binding assay [MI1214]

Radioimmunoassay [MI1203]

Radio-protein binding assay [MI1045]

Bioassay [MI1010]

Animal bioassay [MI1174]

Microbiological assay [MI1173]

Chemical assay [MI1023]

Colorimetric method [MI1154]

Fluorimetric method [MI1152]

Chromatography [MI1144]

Column chromatography [MI1015]

Gas chromatography [MI1205]

Gas chromatography mass spectroscopy [MI1182]

Gas-liquid chromatography [MI1026]

NEW High performance anion exchange chromatography with pulsed amperometric detection [MI1139]

High-performance liquid chromatography [MI1137]

Liquid chromatography - mass spectrometry [MI1183]

NEW Ultra-performance liquid chromatography [MI1138]

Colorimetry [MI1013]

Dye binding [MI1019]

Enzymatic colorimetry [MI1213]

Total sugars method [MI1054]

Distillation [MI1081]

Drying [MI1017]

Air drying [MI1103]

Freeze drying [MI1025]

Vacuum drying [MI1212]

Enzymatic [MI1218]

Englyst method [MI1063]

Enzymatic, other method [MI1061]

Enzymatic-colorimetric method [MI1060]

Enzymatic-gravimetric method [MI1307]

Southgate method [MI1064]

Hydrolysis [MI1121]

Acid hydrolysis with gravimetric quantification [MI1202]

Enzyme hydrolysis [MI1021]

Polarimetry [MI1044]

Potentiometry [MI1215]

Ion-selective electrode [MI1037]

Reduimetry [MI1046]

Refractometry [MI1207]

Solvent extraction [MI1302]

Specific gravity measurement [MI1208]

Spectroscopy [MI1002]

Atomic absorption spectroscopy [MI1006]

Atomic emission spectroscopy [MI1142]

Inductively Coupled Plasma Atomic Emission Spectrometry [MI1305]

- Inductively Coupled Plasma Mass Spectrometry [MI1209]
- Near infrared spectroscopy [MI1304]
- Nuclear magnetic resonance spectroscopy [MI1165]
- X-ray fluorescence spectroscopy [MI1303]
- Thermal combustion [MI1216]
 - Bomb calorimetry [MI1160]
 - Dumas method [MI1301]
- Titrimetry [MI1053]
 - Distillation titrimetry [MI1039]
 - Karl Fisher titration [MI1038]
 - Schoorl method [MI1049]
- Calculation method [MIR002]
 - Difference [MIR004]
 - Beta-carotene calculated from total vitamin A [MI0303]
 - NEW** Carbohydrate, available, calculated by difference, generic, organic acids considered [MI0189]
 - AMEND** Carbohydrate, available, calculated by difference, generic, organic acids not considered [MI0184]
 - NEW** Carbohydrate, available, calculated by difference, organic acids not considered (ash as sum of minerals) [MI0186]
 - AMEND** Carbohydrate, available, calculated by difference, organic acids not considered, (nitrogen*6.25, AOAC fibre, ash as sum of minerals) [MI0183]
 - NEW** Carbohydrate, total, calculated by difference, generic, organic acids considered [MI0187]
 - AMEND** Carbohydrate, total, calculated by difference, generic, organic acids not considered [MI0131]
 - NEW** Carbohydrate, total, calculated by difference, organic acids not considered (ash as sum of minerals) [MI0185]
 - Dietary fibre calculated from total carbohydrates and available carbohydrate [MI0171]
 - Dry matter calculated from water content [MI0143]
 - NEW** Fat, monounsaturated cis, total, calculated by difference [MI0254]
 - NEW** Fat, polyunsaturated, total, calculated by difference [MI0255]
 - NEW** Fat, saturated, total, calculated by difference [MI0253]
 - NEW** Fat, trans, total, calculated by difference [MI0256]
 - NEW** Fat, unsaturated, total, calculated by difference from total fat minus total saturated fat [MI0251]
 - Fatty acids, monounsaturated fatty acids calculated by difference [MI0203]
 - Fatty acids, other polyunsaturated fatty acids calculated by difference [MI0215]
 - Fatty acids, saturated fatty acids by difference [MI0205]
 - Fatty acids, total unsaturated, calculated by difference from total fatty acids and total saturated fatty acids [MI0224]
 - Fatty acids, trans fatty acids by difference [MI0206]
 - NEW** Fructose calculated by difference from total sugars minus individual mono and disaccharides [MI0166]
 - NEW** Galactose calculated by difference from total sugars minus individual mono and disaccharides [MI0165]
 - NEW** Glucose calculated by difference from total sugars minus individual mono and disaccharides [MI0164]
 - NEW** Iron, haem, calculated by difference from total iron and non-haem iron [MI0613]
 - NEW** Iron, non-haem, calculated by difference from total iron and haem iron [MI0612]
 - NEW** Lactose calculated by difference from total sugars minus individual mono and disaccharides [MI0167]
 - NEW** Maltose calculated by difference from total sugars minus individual mono and disaccharides [MI0168]
 - NEW** Protein, animal, calculated by difference from total protein [MI0128]
 - NEW** Protein, plant, calculated by difference from total protein [MI0126]

- Retinol by difference [MI0316]
- NEW** Saccharose calculated by difference from total sugars minus individual mono and disaccharides [MI0169]
- Starch by difference [MI0161]
- NEW** Sugar calculated by difference [MI0154]
- Water by difference [MI0142]
- Water by difference, generic [MI0141]
- NEW** Water by difference, organic acids considered [MI0144]
- Factored summation [MIR005]
 - Beta-carotene equivalent calculation including alpha-carotene [MI0304]
 - Beta-carotene equivalent calculation including alpha-carotene and cryptoxanthins [MI0301]
 - Energy (kcal) calculated from energy (kJ) as kJ/4.18 [MI0117]
 - Energy calculated according to adapted factors (kJ) [MI0116]
 - Energy calculated according to Atwater (kcal, general factors) [MI0102]
 - AMEND** Energy calculated according to Atwater (kJ, general factors) [MI0111]
 - Energy calculated according to Atwater (specific factors) [MI0106]
 - AMEND** Energy calculated according to Codex Alimentarius (kcal) [MI0103]
 - AMEND** Energy calculated according to Codex Alimentarius (kJ) [MI0104]
 - Energy calculated according to Nordic Nutrition Recommendations (kJ) [MI0110]
 - INACTIV** Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kcal) [MI0108]
 - INACTIV** Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kcal, NCF protein exception) [MI0112]
 - INACTIV** Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ) [MI0107]
 - INACTIV** Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ, NCF protein exception) [MI0113]
 - INACTIV** Energy calculated according to Nutrition Labelling Directive 90/496/EEC (kJ, polydextrose exception) [MI0109]
 - AMEND** Energy calculated according to Regulation (EU) 1169/2011 (kcal) [MI0115]
 - NEW** Energy calculated according to Regulation (EU) 1169/2011 (kcal, NCF protein exception) [MI0119]
 - AMEND** Energy calculated according to Regulation (EU) 1169/2011 (kJ) [MI0114]
 - NEW** Energy calculated according to Regulation (EU) 1169/2011 (kJ, NCF protein exception) [MI0118]
 - Energy calculated according to Southgate (kcal) [MI0101]
 - Energy calculated according to Southgate (kJ) [MI0105]
 - NEW** Energy calculated according to Swiss Standard (kcal) [MI0712]
 - NEW** Energy calculated according to Swiss Standard (kJ) [MI0711]
 - NEW** Fat, monounsaturated cis, total, calculated from total monounsaturated cis fatty acids [MI0258]
 - NEW** Fat, polyunsaturated, total, calculated from total polyunsaturated fatty acids [MI0259]
 - NEW** Fat, saturated, total, calculated from total saturated fatty acids [MI0257]
 - NEW** Fat, trans, total, calculated from total trans fatty acids [MI0260]
 - AMEND** Fatty acid content calculated on fatty acid profile [MI0201]
 - AMEND** Fatty acids, total fatty acids calculated from total fat [MI0207]
 - Fatty acids, total monounsaturated, calculated from total monounsaturated fat [MI0221]
 - Fatty acids, total polyunsaturated, calculated from total polyunsaturated fat [MI0222]
 - Fatty acids, total saturated, calculated from total saturated fat [MI0220]
 - Fatty acids, total trans, calculated from total trans fat [MI0223]
 - Folate calculated from free folic acid and bound folic acid [MI0452]
 - Folate calculated from intrinsic folic acid and added folic acid [MI0453]
 - NEW** Iron, haem, calculated from total iron using a conversion factor [MI0611]

- Niacin equivalents calculated from niacin and tryptophan (reduced niacin availability) [MI0422]
- Niacin equivalents calculated from niacin and tryptophan [MI0421]
- Niacin equivalents calculated from tryptophan only [MI0423]
- Nitrogen, total, calculated from protein using specific NCF [MI0127]
- Protein calculated from amino acid nitrogen [MI0121]
- Protein calculated from protein nitrogen [MI0122]
- Protein calculated from total nitrogen [MI0123]
- NEW** Protein, animal, calculated from total protein using a conversion factor for each individual food [MI0125]
- Retinol calculated from individual retinoids [MI0314]
- NEW** Salt equivalent calculated from sodium [MI0120]
- Vitamin A activity calculated from retinol and beta-carotene (factor 1/12) [MI0325]
- Vitamin A activity calculated from retinol and beta-carotene (factor 1/2) [MI0321]
- Vitamin A activity calculated from retinol and beta-carotene (factor 1/6) [MI0322]
- Vitamin A activity calculated from retinol and carotenoids [MI0324]
- Vitamin A activity calculated from retinol, beta-carotene and other pro-vitamin A carotenoids (factors 1/6 and 1/12) [MI0323]
- Vitamin D activity calculated from cholecalciferol and 25-hydroxy cholecalciferol (factor 5) [MI0353]
- Vitamin D activity calculated from cholecalciferol, ergocalciferol and 25-hydroxy cholecalciferol [MI0354]
- NEW** Vitamin E activity calculated from individual tocopherols [MI0370]
- Vitamin E activity calculated from intrinsic d-alpha-tocopherol and added alpha-tocopherol [MI0369]
- Vitamin E activity calculated from tocopherols and tocotrienols [MI0365]
- NEW** Vitamin E activity calculated from tocopherols and tocotrienols (DACH factors) [MI0371]
- Simple summation [MIR006]
 - NEW** Amino acids, total eight essential + CYS + TYR, calculated as sum of individual amino acids [MI0674]
 - NEW** Amino acids, total eight essential + HIS and ARG, calculated as sum of individual amino acids [MI0673]
 - NEW** Amino acids, total eight essential + HIS, calculated as sum of individual amino acids [MI0672]
 - NEW** Amino acids, total eight essential, calculated as sum of individual amino acids [MI0671]
 - NEW** Ash calculated as sum of minerals [MI0614]
 - Carbohydrate, available calculated from sugar and starch [MI0181]
 - Carbohydrate, available calculated from sugar, starch, oligosaccharides and matodextrins [MI0182]
 - NEW** Carbohydrate, available, calculated from sugar, starch, oligosaccharides, maltodextrins and polyols [MI0188]
 - AMEND** Carbohydrate, Regulation (EU) 1169/2011, calculated from available carbohydrate and polyols [MI0001]
 - Carotenes, total, calculated as sum of carotenoids (no activity adjustment) [MI0302]
 - Dietary fibre calculated from individual fibre fractions [MI0172]
 - NEW** Disaccharides calculated as sum of individual disaccharides [MI0155]
 - NEW** Fat, unsaturated total, calculated as the sum of total monounsaturated, polyunsaturated and trans fat [MI0252]
 - Fatty acids, monounsaturated, calculated as sum of individual fatty acids, cis isomers only [MI0210]
 - Fatty acids, monounsaturated, calculated as sum of individual fatty acids, including trans isomers [MI0211]
 - Fatty acids, polyunsaturated, calculated as sum of individual fatty acids, including all isomers [MI0214]

- Fatty acids, polyunsaturated, calculated as sum of individual fatty acids, all-cis isomers only [MI0212]
- Fatty acids, polyunsaturated, calculated as sum of individual fatty acids, excluding all-trans isomers [MI0213]
- Fatty acids, saturated, calculated as the sum of individual fatty acids, excluding branched chain isomers [MI0208]
- Fatty acids, saturated, calculated as the sum of individual fatty acids, including branched chain isomers [MI0209]
- NEW** Fatty acids, total cis n-3 polyunsaturated, calculated as sum of cis n-3 polyunsaturated fatty acids [MI0219]
- NEW** Fatty acids, total cis n-6 polyunsaturated, calculated as the sum cis n-6 polyunsaturated fatty acids [MI0218]
- AMEND** Fatty acids, total fatty acids calculated as sum of individual fatty acids [MI0202]
- Fatty acids, total polyunsaturated n-3 fatty acids [MI0216]
- NEW** Fatty acids, total trans, calculated as sum of mono and polyunsaturated all trans isomers [MI0217]
- NEW** Fatty acids, unsaturated total, calculated as the sum of total monounsaturated, polyunsaturated and trans fatty acids [MI0225]
- Folate calculated by summation of free folic acid and bound folic acid [MI0451]
- NEW** Monosaccharides calculated as sum of individual monosaccharides [MI0156]
- NEW** Organic acids, total, calculated as the sum of individual organic acids [MI0641]
- Protein calculated as the sum of individual amino acids [MI0124]
- Retinol calculated from trans- and cis-retinol [MI0315]
- Sugar calculated as the sum of individual mono-, di-, and tri-saccharides [MI0151]
- Sugar calculated as the sum of individual mono- and disaccharides [MI0512]
- Sugar calculated as the sum of total mono- and di-saccharides [MI0153]
- Vitamin D activity calculated as ergocalciferol [MI0352]
- Vitamin D activity calculated as the sum of ergocalciferol and cholecalciferol [MI0351]
- NEW** Vitamin D activity calculated from cholecalciferol and 25-hydroxy cholecalciferol (factors not applied) [MI0355]
- Vitamin E activity calculated as d-alpha-tocopherol [MI0368]
- NEW** Vitamin K total calculated as the sum of vitamin K1 and vitamin K2 [MI0382]
- NEW** Vitamin K2 calculated as the sum of individual vitamin K2 isomers [MI0381]
- Imputation [MIR007]
 - NEW** Imputation of a component from one or more components from related food [MI0232]
 - Imputation of a component from one or more components in the same food [MI0231]
- Method not known [MIR003]
 - NEW** Analytical method not known [MI1401]
- Other method [MIR009]
- Recipe calculation method [MIR008]
 - Other recipe calculation procedure [MI0005]
 - Recipe calculation with factors [MIR011]
 - Ingredient level calculation procedure [MI0004]
 - Mixed level calculation procedure [MI0006]
 - EuroFIR recipe calculation procedure [MI0002]
 - Recipe level calculation procedure [MI0003]
 - Simple recipe calculation [MIR010]

EuroFIR Acquisition Type Thesaurus version 1.2 – a tree view

Acquisition type not known [X]
Authoritative Document [A]
Food composition table [F]
Food label, product information [L]
Independent laboratory [D]
Industry laboratory [I]
In-house or affiliated laboratory [O]
Other acquisition type [E]
Published and peer reviewed scientific paper [P]
NEW Recipe collection [R]
Scientific communication [C]
Value created within host-system [S]

EuroFIR Matrix Unit Thesaurus version 1.4 – a tree view

not applicable [X]

per 100g dry weight [D]

per 100g edible portion [W]

NEW per 100g protein [PP]

NEW per 100g total amino acids [A]

per 100g total fat [TF]

AMEND per 100g total fatty acids [F]

NEW per 100 fatty acid (identified only) [FI]

NEW per 100 g fatty acid (identified and unidentified) [FIU]

per 100g total food [T]

per 100ml food volume [V]

per g nitrogen [N]

NEW per g protein [P]

per g total fat [FT]

per kg dry weight [DKG]

per kg edible portion [WKG]

per kg total food [TKG]

AMEND per l food volume [VL]

AMEND per ml food volume [VM]

per unit [U]

EuroFIR Unit Thesaurus version 1.2 –a tree view

alpha-tocopherol equivalent [ATE]
 beta-carotene equivalent [BCE]
 degrees Brix [BX]
 gram [g]
 kilocalorie [kcal]
 kilogram [kg]
 kilojoule [kJ]
 AMEND litre [l]
 microgram [ug]
 microlitre [ul]
 milligram [mg]
 AMEND millilitre [ml]
 millimole [mmol]
 monosaccharide equivalent [MSE]
 nanogram [ng]
 niacin equivalent [NE]
 per cent [PCT]
 ratio [R]
 retinol equivalent [RE]

EuroFIR Method Type Thesaurus version 1.2 – a tree view

The structure of the this thesaurus has been AMENDED – generic terms have been introduced as BT to more specific methods

NEW Aggregation of contributing values [AGR]
 Aggregated from contributing food items [G]
 Aggregation of contributing analytical results [D]
 AMEND Analytical, generic [AG]
 Analytical result(s) [A]
 AMEND Calculated, generic [CG]
 Calculated as recipe [R]
 NEW Calculated as recipe, missing value(s) for one or more ingredients [RX]
 NEW Calculated as recipe, no missing value(s) [RN]
 Calculated from related food [K]
 Calculated on component profile [P]
 Calculations including conversion factors [T]
 Summation from constituent components [S]
 AMEND Imputed/estimated, generic [IG]
 Estimated according to logical deduction [U]
 Estimated according to regulatory requirements [L]
 Imputed/estimated from other food and other related component [O]
 Imputed/estimated from related food [I]
 Method type not known [X]
 Other method type [E]

EuroFIR Value Type Thesaurus version 1.2 – a tree view

as reported [AR]

average [AV]

NEW below limits of detection or quantification [BLX]

AMEND below limit of detection [BL]

NEW below limit of quantification [BQ]

below detection limit [BL]

best estimate [BE]

less than [LT]

logical zero [LZ]

maximum [MX]

mean [MN]

median [MD]

minimum [MI]

more than [MT]

NEW not processed [NP]

other value type [E]

trace [TR]

undecidable [UD]

unknown [N]

value type not known [X]

weighted [W]