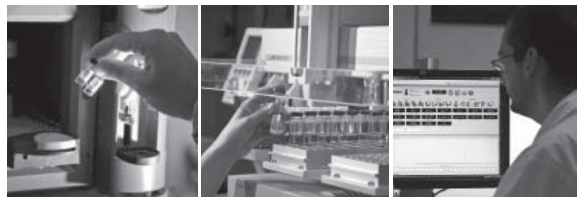


# Testing services – Chemistry

## Food analysis:

### Dioxins, furans and PCBs

*In recent years, problems related to the harmful effects of dioxins on humans and the environment has prompted growing concern worldwide. Mérieux NutriSciences possesses over 10 years of experience in dioxin and PCB testing in foodstuffs and can help you assure the safety and integrity of your products in accordance with regulatory standards.*



Dioxins is a name commonly given to a class of chlorinated compounds identified as PCDDs (Polychlorinated Dibenzodioxins) and PCDFs (Polychlorodibenzofurans). These compounds, together with dioxin-like PCBs and furans, persist in the environment, accumulate in the food chain and can cause a host of adverse health effects in humans. The structure of these compounds affect their degree of toxicity (in particular, the 2,3,7,8-TCDD or TCDD is shown to be a teratogenic and carcinogenic pollutant.

Article 5 of the Commission Regulation EU No 1881/2006 and its amendment has established maximum residue levels for 17 of these compounds, as well as the sum of dioxins, dioxin-like PCBs and non-dioxin-like PCBs, each with a specific degree of toxicity.

Dioxin-like PCBs are polychlorinated biphenyls and behave in the same way as dioxins and furans in terms of properties and toxicity equivalent factor. There are 12 compounds, which are determined and reported in the same way as dioxins and furans.

Non dioxin-like are also polychlorinated biphenyls (NDL PCBs) and 6 of the indicators are regulated. The physical/chemical characteristics of these three groups are similar. They are resistant to biological degradation, are highly lipophilic and accumulate especially in food matrices of animal origin.

### Mérieux NutriSciences Offer

Mérieux NutriSciences offers comprehensive analytical packages in compliance with the European Regulation No 1881/2006, applying official EPA methods by means of high-resolution gas chromatography/ high resolution mass spectrometry HRGC/HRMS to determine PCDDs/PCDFs, furans and PCBs in food and feed matrices. Extensive packages for environmental matrices are available on request.

Analytical results of the different compounds are expressed in toxic equivalents of TCDD (TEQ units or TE) through the use of appropriate analytical-toxicological conversion factors (I-TEF or WHO-TEF or OMS-TEF).

With a broad understanding of specific food production processes and a highly skilled staff, Mérieux NutriSciences is your trusted partner for dioxins, furans & PCBs analysis.

#### LOQ\* for water:

PCDD/PCDF	Method	LOQ*	Accreditation
Water	EPA 1613 B 1994	0.00050 ng/l	Yes
PCBs			
Water	EPA 1668 C 2010	0.004 ng/l	Yes

\*Limit of quantification

#### Application field:

- ▷ Drinking water
- ▷ Feed
- ▷ Food stuffs

**For further information please contact our experts: call +39 0423 7177 or write to [food.italy@mxns.com](mailto:food.italy@mxns.com)**

## LOQ\* for feed and food stuffs:

Dioxin-like PCBs	Method	LOQ* pg/g FATTY FOOD	LOQ* pg/g FOOD WITH <2% FAT CONTENT	LOQ* pg/g WET WEIGHT	Accreditation
(81) 3,4,4',5-TetraCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(77) 3,3',4,4'-TetraCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(123) 2',3,4,4',5-PentaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(118) 2,3',4,4',5-PentaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(114) 2,3,4,4',5-PentaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(105) 2,3,3',4,4'-PentaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(126) 3,3',4,4',5-PentaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(167) 2,3',4,4',5,5'-HexaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(156) 2,3,3',4,4',5-HexaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(157) 2,3,3',4,4',5'-HexaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(169) 3,3',4,4',5,5'-HexaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
(189) 2,3,3',4,4',5,5'-HeptaCB	EPA 1668 C 2010	0,1	0,01	0,05	yes
PCBs WhoTeq (U.B.)	RegCEE 1259/2011 02/12/11 GUCE L320 03/12/11				yes
Sum of DLPCBs (U.B.)	EPA 1668 C 2010				yes
Non Dioxin-like PCBs	Method	LOQ* pg/g FATTY FOOD	LOQ* pg/g FOOD WITH <2% FAT CONTENT	LOQ* pg/g WET WEIGHT	Accreditation
(28) 2,4,4'-TriCB	EPA 1668 C 2010	8	0,8	4	yes
(52) 2,2',5,5'-TetraCB	EPA 1668 C 2010	8	0,8	4	yes
(101) 2,2',4,5,5'-PentaCB	EPA 1668 C 2010	8	0,8	4	yes
(138) 2,2',3,4,4',5'-HexaCB	EPA 1668 C 2010	8	0,8	4	yes
(153) 2,2',4,4',5,5'-HexaCB	EPA 1668 C 2010	8	0,8	4	yes
(180) 2,2',3,4,4',5,5'-HeptaCB	EPA 1668 C 2010	8	0,8	4	yes
SUM OF PCB28, PCB52, PCB101, PCB138, PCB153 AND PCB180 (ICES - 6)	RegCEE 1259/2011 02/12/11 GUCE L320 03/12/11	**	**	**	yes
Polychlorinated Dibenzodioxins / furans (PCDDs/PCDFs)	Method	LOQ* pg/g FATTY FOOD	LOQ* pg/g FOOD WITH <2% FAT CONTENT	LOQ* pg/g WET WEIGHT	Accreditation
Toxic congeners considered by OMS, PCDD substituted in 2,3,7,8					
2,3,7,8-TetraCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,7,8-PentaCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,4,7,8-HexaCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,6,7,8-HexaCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,7,8,9-HexaCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,4,6,7,8-HeptaCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
OctaCDD	EPA 1613 B 1994	0,05	0,005	0,025	yes
PCDF substituted in 2,3,7,8					
2,3,7,8-TetraCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,7,8-PentaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
2,3,4,7,8-PentaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,4,7,8-HexaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,6,7,8-HexaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
2,3,4,6,7,8-HexaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,7,8,9-HexaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,4,6,7,8-HeptaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
1,2,3,4,7,8,9-HeptaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
OctaCDF	EPA 1613 B 1994	0,05	0,005	0,025	yes
Toxicity equivalent (WHO-TEQ)	RegCEE 1259/2011 02/12/11 GUCE L320 03/12/11				yes
Dioxins and dopxin-like PCB (OMSPCDD/F-PCBTEQ)	RegCEE 1259/2011 02/12/11 GUCE L320 03/12/11				yes

\*Limit of  
quantification

\*\* ng/g

FL1615\_0\_ENG  
Photos: Shutterstock, Mérieux NutriSciences. Printed in Italy

### Accredited matrices:

Additives, animal fat, cereals and by products, cheese, supplements, drinking water, eggs and egg products, entrails, fish products, meat and by-products, milk, vegetable fat.

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