



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 31648-2025

**National food safety standard - Code of practice for the control
of dioxins and polychlorinated biphenyls in foods**

食品安全国家标准 食品中二噁英及多氯联苯污染控制规范

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2 Terms and definitions

- 2.1 Food animal: any animal kept for human consumption or whose products are consumed by people.
- 2.2 Dioxins (PCDD/Fs): the collective name for polychlorinated dibenzo-para-dioxins and polychlorinated dibenzofurans.
- 2.3 Polychlorinated biphenyls (PCBs): the collective name for compounds in which hydrogen atoms on the biphenyl rings are replaced by chlorine atoms, including dioxin-like and non-dioxin-like polychlorinated biphenyls.
- 2.4 Dioxin-like polychlorinated biphenyls (DL-PCBs): those polychlorinated biphenyls that have toxicological properties similar to dioxins, comprising the non-ortho and mono-ortho substituted congeners.
- 2.5 Non-dioxin-like polychlorinated biphenyls: the collective name for the polychlorinated biphenyls other than the dioxin-like ones.
- 2.6 Indicator PCBs: those polychlorinated biphenyls able to represent the contamination pattern of the class.
- 2.7 Dioxins and their analogues: the collective name for those PCDD/Fs and PCBs that have similar toxicological properties.
- 2.8 Toxic equivalency factor (TEF): the coefficient obtained by comparing the toxicity of a

given dioxin or analogue with that of 2,3,7,8-tetrachlorodibenzodioxin (TCDD), expressing the relative toxicity of the compound.

2.9 Toxic equivalent (TEQ): the relative toxicity value obtained by multiplying the mass concentration of a dioxin or analogue by its TEF.

3 Production environment for edible agricultural products

3.1 The growing environment of edible plants, comprising soil, air and irrigation water, shall be kept free from contamination by dioxins and polychlorinated biphenyls. Where sources of emission such as steel making, secondary non-ferrous metal smelting, waste incineration, pulp and paper making, cremation and the production of certain organochlorine chemicals lie near the growing environment, monitoring for dioxins and polychlorinated biphenyls shall be intensified.

3.2 Sludge used in agricultural production shall be kept free from contamination by dioxins and polychlorinated biphenyls; where it is contaminated, suitable measures shall be taken to dispose of it and to lower the possible risk.

3.3 to 3.4 The soil of land used for raising food animals shall be kept free from contamination by dioxins and polychlorinated biphenyls, and outdoor rearing of food animals shall be avoided as far as possible in contaminated areas. The rearing environment near typical emission areas, such as sites where electronic waste is dismantled, shall be monitored for dioxins and polychlorinated biphenyls in air, soil and water.

3.5 Contact with wooden building materials and related products containing dioxins and polychlorinated biphenyls, such as wood shavings and sawdust, should be reduced during the rearing of food animals. Sawdust containing dioxins and polychlorinated biphenyls shall not be used in rearing.

3.6 Fishery production areas shall be kept free from contamination by dioxins and polychlorinated biphenyls. The sediment and aquatic animals of fishing and farming areas should be monitored regularly so that high risk areas and contaminated aquatic products can be identified, and the areas or aquatic products to be closed to fishing determined from the monitoring results.

3.7 to 3.9 Inputs used in growing and rearing shall be monitored for dioxins and polychlorinated biphenyls so as to reduce the contamination carried in by pesticides and other inputs that may contain them. The soil, water and sediment of growing and rearing areas that may be at risk of the contamination described in 3.1 shall be monitored, for instance the soil of free-range laying hen areas, the soil of cattle and sheep rearing areas and the water and sediment of waterfowl rearing areas. The monitoring requirements for the production environment of edible agricultural products are given for reference in Annex A.

4 Feed for food animals

4.1 The possible points of contamination in the supply chain of the feed used for food animals should be analysed, and the sources of contamination of feeds at higher risk of dioxins and polychlorinated biphenyls should be identified.

4.2 The production of feed for food animals shall comply with GB 13078 and the other relevant provisions. Feed suppliers shall provide a certificate of conformity for the product and, where necessary, documentation on the origin of the feed materials.

4.3 Feeds that may be contaminated, such as fishmeal, oils and fats and silage, and feed additives such as trace element products including copper sulfate, mineral products including montmorillonite and industrially synthesised products including vitamin E oil, should be monitored for dioxins and polychlorinated biphenyls; the monitoring requirements are given for reference in Annex A.

5 Food processing

5.1 Processing shall comply with GB 14881 and the other applicable hygiene codes.

5.2 Raw materials for processing shall not come from areas contaminated by dioxins and polychlorinated biphenyls. For raw materials of animal origin, processes such as skinning, defatting or partial defatting may be used where necessary to lower the content of dioxins and polychlorinated biphenyls.

5.3 Equipment on which grease and frying residues readily form, such as frying, smoking and baking equipment, shall be cleaned and disinfected regularly, and hygiene monitoring measures shall be laid down, implemented, recorded and verified.

5.4 For the key operations in which dioxins and polychlorinated biphenyls readily arise, such as drying, smoking, frying and baking, effective measures shall be taken to reduce their formation, and the corresponding operating procedures shall be laid down, implemented, recorded and verified. In hot drying, fuels that readily generate dioxins and polychlorinated biphenyls, such as firewood and low grade coal, shall not be used. In smoking, the blackened particles that appear on the surface of the food shall be removed promptly. In frying, stainless steel equipment and utensils shall be used, the frying oil shall comply with GB 2716 and GB 10146, monitoring of the frying process shall be strengthened, residues shall be removed from the oil promptly, and the frying oil shall be changed in good time and not used repeatedly.

5.5 Food-related products shall not be contaminated by dioxins and polychlorinated biphenyls. Bamboo and wood materials and articles in contact with food shall comply with GB 4806.12.

6 Food storage and transport

6.1 Storage and transport shall comply with GB 14881 and the other applicable hygiene codes.

6.2 Building materials containing dioxins and polychlorinated biphenyls, such as asphalt, polyvinyl chloride and phosphogypsum coal ash, shall not be used on the wall surfaces of food storage premises. Premises in which smoking or burning has occurred shall not be used for storing food until the associated contamination risk has been effectively removed.

6.3 Sprayed vehicles, ships and containers used in the storage and transport of food shall not be contaminated by the dioxins and polychlorinated biphenyls present in paint.

A Annex A Monitoring requirements for dioxins and polychlorinated biphenyls

A.1 The analytical methods and the laboratory requirements for dioxins and polychlorinated biphenyls shall comply with the relevant standards, and effective quality control measures shall be laid down so that the results are accurate.

A.2 Samples collected shall be representative, valid and traceable; cross-contamination shall be avoided, deterioration prevented and the relevant standards met. Records of sample collection shall be kept, including the sampling date, the geographical location, the type of sample and the quantity. Samples shall be held in packaging containers that do not react with dioxins or polychlorinated biphenyls and that have been cleaned with chemical solvents or otherwise confirmed clean and free of contamination by them. Perishable foods shall be stored and transported under suitable conditions.

A.3 The analytical method shall meet the minimum needs of the analytical objective. Where it is used to judge compliance, the quantification limit shall be below one fifth of the standard limit; where it is used to assess how the content of dioxins and polychlorinated biphenyls in a sample changes over time, the quantification limit shall be below the background level in the various sample matrices. The method shall also meet the needs of the analytical purpose; for example, when the test result is 0.5 times, 1 time and 2 times the limit, the coefficient of variation over repeated analyses shall be within an acceptable range, and for foods and feeds in which the concentration of dioxins and their analogues is about 1 pg WHO-TEQ per gram on a fat basis, the difference between the upper bound and lower bound levels shall not exceed 20 percent.

A.4 Depending on the type of sample, the reported results shall state whether they are based on the wet weight, the dry weight or the lipid weight of the sample, the methods used for lipid extraction and for the determination of dry weight, and the method used to calculate the quantification limit for the sample; where necessary results on a wet weight or dry weight basis shall be reported at the same time. Except for bioassay methods, the total