

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية
STANDARDIZATION ORGANIZATION FOR G.C.C (GSO)

First Draft

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**مذيبات الاستخلاص والحدود القصوى المسموح بها المستخدمة في إنتاج
المواد الغذائية و مكوناتها**

**Extraction solvents and it's residue limits in the production of
foodstuffs and food ingredients**

Prepared by:

Gulf Technical Committee for Food and Agricultural Products

**This document is a draft Gulf Standard circulated for comments. It is,
therefore, subject to Alteration and modification, and may not be referred
it as a Gulf Standard, until by the Board of Directors**

ICS : 67.040

Foreword

Standardization Organization for (GCC) is a regional Organization which consists of National Standard Bodies of GCC member States. One of GCC main function is to issue Gulf Standards through specialized technical committees (TCs).

GSO through the technical program of committee TC No. (5) 'Technical Gulf committee for food and agricultural products standards' has prepared the standard of " **Extraction solvents and it's residue limits in the production of foodstuffs and food ingredients** " The draft standard has been prepared by Saudi Arabia, after review the Arabic, foreigner and International standards and related complied references.

This standard has been approved as Gulf technical regulation by GSO Board of Directors in its meeting No.... / held on / H, / / G.

Extraction solvents and it's residue limits in the production foodstuffs and food ingredients

1. SCOPE AND FIELD OF APPLICATION

- 1.1 This Directive applies to extraction solvents used or intended for use in the production of foodstuffs and food ingredients. Unless product specifications states opposite.

2. COMPLIMENTARY REFERENCES

- 2.1 GSO 9 "Labeling of prepackage food".
- 2.2 GSO 1931/2009 "Halal Food Part (1): General Requirement".

3. DEFINITIONS :

- 3.1 Solvent: means any substance for dissolving a foodstuff or any component thereof, including any contaminant present in or on that foodstuff.
- 3.2 Extraction solvent: means a solvent which is used in an extraction procedure during the processing of raw materials, of foodstuffs, or of components or ingredients of these products and which is removed but which may result in the unintentional, but technically unavoidable, presence of residues or derivatives in the foodstuff or food ingredient.

4. REQUIREMENTS:

- 4.1 Without prejudice of what stated in GSO mentioned in items (2.2).
The use of extraction solvents in the manufacture of foodstuffs or food ingredients of those substances and materials listed in Table 1,2,3 only are permitted.
- 4.2 Extraction solvents residue shall not exceed on what are listed in Table 1,2,3.
- 4.3 Water to which substances regulating acidity or alkalinity may have been added and other food substances which possess solvent properties are authorized as extraction solvents in the manufacture of foodstuffs or as food ingredients.
- 4.4 Extraction solvents shall not contain a toxicologically dangerous amount of any element or substances.
- 4.5 Extraction solvents shall not contain:

- more than 1 mg/kg of arsenic
- more than 1 mg/kg of lead.

5. SAMPLING AND METHODOLOGY

- 5.1 Sampling and Methodology shall be carried out according to the GSO standard, “Methods of Test for Extraction Solvents used in Foodstuffs” to be approved by the organization.

6. LABELLING

Without prejudice of what stated in GSO mentioned in items (2.1). The label of extraction solvent should declare the following:

- 6.1 The commercial name as indicated in Table 1.
- 6.2 A clear indication that the material is of a quality suitable for use for the extraction of food or food ingredients.
- 6.3 If necessary, the special storage conditions or conditions of use.
- 6.4 The name or business name and address of the manufacturer or packer or of a seller established within the Community.

Table 1: Extraction solvents to be used in compliance with good manufacturing practice for all uses ⁽¹⁾.

Name
Propane
Butane
Ethyl acetate
Ethanol ⁽²⁾
Carbon dioxide
Nitrous oxide
Benzyle alcohol

(1) An extraction solvents is considered as being used in compliance with good manufacturing practice if its use results only in the presence of residues or derivatives in technically unavoidable quantities presenting no danger to human health.

(2) All products shall be free from Ethanol unless product specification states opposite and if its used as an extraction solvents in the preparation of flavouring it can be used in compliance with good manufacturing practice.

Table 2: Extraction solvents for which conditions of use are specified

Name	Conditions of use (summary description of extraction)	Maximum residue limits in the extracted foodstuff or food ingredient
Hexane ⁽¹⁾	Production or fractionation of fats and oils and production of cocoa butter	1 mg/kg in the fat or oil or cocoa butter
	Preparation of defatted protein products and defatted flours	10 mg/kg in the food containing the defatted protein products and the defatted flours
		30 mg/kg in the defatted soya products as sold to the final consumer
	Preparation of defatted cereal germs	5 mg/kg in the defatted cereal germs
Methyl acetate	Decaffeination of, or removal of irritants and bitterings from coffee and tea	20 mg/kg in the coffee or tea
	Production of sugar from molasses	1 mg/kg in the sugar
Ethylmethylketone ⁽²⁾	Fractionation of fats and oils	5 mg/kg in the fat or oil
	Decaffeination of, or removal of irritants and bitterings from coffee and tea	20 mg/kg in the coffee or tea
Dichloromethane	Decaffeination of, or removal of irritants and bitterings from coffee and tea	2 mg/kg in the roasted coffee and 5 mg/kg in the tea
Methanol	All uses	1.5 mg/kg
Propan-2-ol	All uses	1 mg/kg
Dibutyl ether	All uses	2 mg/kg
Diethyl ether	All uses	2 mg/kg
Dimethyl ether	defatted animal protein products	0,009 mg/kg
Glycerl triacetate	All uses	2 mg/kg
Butanol	All uses	10 mg/kg
Toluene	All uses	1 mg/kg
Methylene chloride	Decaffeination coffee and tea	2 mg/kg
Acetone ⁽³⁾	All uses	0,1 mg/kg

⁽¹⁾ Hexane means a commercial product consisting essentially of acyclic saturated hydrocarbons containing six carbon atoms and distilling between 64 °C and 70 °C. The combined use of Hexane and Ethylmethylketone is forbidden.

⁽²⁾ The level of n-Hexane in this solvent should not exceed 50 mg/kg. The combined use of Hexane and Ethylmethylketone is forbidden.

⁽³⁾ The use of Acetone in the refining of olive-pomace oil is forbidden.

Table 3: Extraction solvents for which conditions of use are specified

Name	Maximum residue limits in the foodstuff due to the use of extraction solvents in the preparation of flavorings from natural flavoring materials
Diethyl ether	2 mg/kg
Methyl acetate	1 mg/kg
Butan-1-ol	1 mg/kg
Butan-2-ol	1 mg/kg
Ethylmethylketone ⁽¹⁾	1 mg/kg
Dichloromethane	0,02 mg/kg
Propan-1-ol	1 mg/kg
1,1,1,2-tetrafluoroethane	0,02 mg/kg
Cyclohexane	1 mg/kg
Hexan	1 mg/kg
Acetone ⁽¹⁾	2 mg/kg
Isobutane	1 mg/kg
Methylene choride	2 mg/kg

⁽¹⁾ The compined use of Hexan and Ethylmethylketone is forbidden.

Reference

- Directive 2009/32/EC (Extraction solvents used in the production of foodstuffs and food ingredients)

- Australia New Zealand Food Standards Code - Standard 1.3.3(2013) - Processing Aids