ISSN 1831-9424



JRC TECHNICAL REPORT

Testing conditions for kitchenware articles in contact with foodstuffs: plastics metals, silicone & rubber, paper & board

The EURL-FCM harmonised approach series

Beldi, G., Senaldi, C., Robouch, P., Hoekstra, E.



This publication is a Technical report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policymaking process. The contents of this publication do not necessarily reflect the position or opinion of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of this publication. For information on the methodology and quality underlying the data used in this publication for which the source is neither European to other Commission services, users should contact the referenced source. The designations employed and the presentation of material on the maps do not imply the expression of any opinion whatsoever on the part of the European Union concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Contact information

Name: E. Hoekstra Email: <u>JRC-EURL-FCM@ec.europa.eu</u>

EU Science Hub

https://joint-research-centre.ec.europa.eu

JRC134290

EUR 31577 EN

PDF ISBN 978-92-68-05108-5 ISSN 1831-9424 <u>doi:10.2760/80698</u> KJ-NA-31-577-EN-N

Luxembourg: Publications Office of the European Union, 2023

© European Union, 2023



The reuse policy of the European Commission documents is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Unless otherwise noted, the reuse of this document is authorised under the Creative Commons Attribution 4.0 International (CC BY 4.0) licence (<u>https://creativecommons.org/licenses/by/4.0/</u>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated.

All content © European Union, 2023, except:

Front page image by © Fredy Sujono. Image # 182207536. Source stock.adobe.com

How to cite this report: Beldi, G., Senaldi, C., Robouch, P. and Hoekstra, E., *Testing conditions for kitchenware articles in contact with foodstuffs: plastics, metals, silicone and rubber, paper and board*, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/80698, JRC134290.

Contents

Introduction	1
Table 1 - Kitchenware examples	5
Table 2 - Test conditions for plastic kitchenware	. 10
Table 3 - Test conditions for metal kitchenware	. 12
Table 4 - Test conditions for silicone & rubber kitchenware	. 14
Table 5A - Migration test conditions for paper & board kitchenware	. 16
Table 5B - "Extraction" test conditions for paper & board kitchenware	. 18
Table - Rational for the selection of test time and temperature (Specific Migration)	. 20
Table - Implemented modifications vs previous edition	. 21

Introduction

The European Union Reference Laboratory for Food Contact Materials (EURL-FCM) and the National Reference Laboratories (NRLs) of the network have agreed on a set of test conditions, i.e. contact temperature and contact time, to ensure the comparability of measurement results reported in the frame of the implementation of official controls for FCM (Regulation (EU) 2017/625). These test conditions apply only for home use articles. These test conditions may be used as a starting point for establishing test conditions for articles for industrial use (e.g. food processing) where the applicable test conditions could be different.

The comprehensive tables included in this **fourth edition** of the kitchenware report replace the relevant sections in JRC's "*Guidelines on testing conditions for articles in contact with foodstuffs (with a focus on kitchenware)*" of 2009 (<u>https://europa.eu/!RH66Bd</u>), and the first three editions of the report published in 2019 (Ed. 1), 2020 (Ed. 2) and 2021 (Ed. 3, <u>https://bit.ly/3jcdXO2</u>).

The test conditions for specific migration from **plastics and plastic containing articles** are based on expert judgement on the "worst case" foreseeable conditions of use by the consumer, followed by the application of the principles of sections 2.1.3 and 2.1.4 of Annex V of Regulation (EU) No 10/2011^(#). Section 3.1 of Annex V of the same Regulation applies to test conditions for overall migration. The shape, form, material and functionality of an article influence the determination of the foreseeable use, in particular in view of how consumers expect to use such articles on the basis of their likely experience. This choice was based on considerations on how consumers could foreseeably use the article, not on how the producer of the article intended it to be used. It should be emphasised that, in addition to the general requirements of Article 3 of Regulation (EC) No 1935/2004, no material specific EU legislation exists for **metals and alloys, silicone and rubber, and paper and board** in contact with food. Therefore, national legislation shall apply. In the absence of national legislation, the test conditions (time and temperature) presented in these guidelines (based on the test conditions for plastic articles) should apply.

It is assumed that in most cases consumers would make the same use of a specific utensil, independently of the material it is made of. Therefore, the same test conditions are generally recommended for different materials. This may result in less laborious testing of multi-material articles. An exception holds for test conditions of some metallic food preparation utensils (sub-classes: FPU/CAH6, FPU/H1-H4, see Table 1). **Paper and board** articles often do not withstand test conditions and food simulants described in Regulation (EU) No 10/2011 and in those cases other test conditions are suggested.

When an article (main class/subclass) does not exist in a particular material, no test conditions are suggested (left empty) in the corresponding table. If a new article is encountered, the testing conditions from tables of other materials may be considered.

The food simulants to be used during the migration test are defined in Regulation (EU) No 10/2011^(#) for plastics and plastic containing articles. In the absence of defined food simulants for metals and alloys, silicones and rubbers, and paper and board at EU level, national legislation shall apply. In the absence of national legislation, national recommendations or recommendations of the Council of Europe can be considered. In absence of those, the food simulants presented in these guidelines (based on the test conditions for plastic articles) should be used, when feasible. The practical guidelines for manufacturers and regulators on "*Metals and alloys used in food contact materials and articles*", and "*Paper and Board used in food contact materials and articles*" published by the Council of Europe are available from https://www.edqm.eu/en/food-contact-materials-and-articles.

If the indicated food simulants are not appropriate, specific migration testing into food should be considered. The results of specific migration tests in food always prevail over the results obtained in

food simulant. Please note that the test conditions to be used for food (cf. cooking instructions) may differ from the test conditions in this guide.

This guide recommends other aspects related to migration testing, such as sample preparation, test type and considerations on the surface-to-volume to be used for the calculation of the result. The sample preparation concerns advice on cutting the sample or not, testing the intact article or testing a part of the article. The test type relates to testing by immersion (e.g. complete, reverse pouch), by filling (e.g. article, pouch), by migration cell (flat articles), or by actual use (assembled articles). "Actual" use means that the test conditions are the same as the operational conditions of the article and may be different from "worst foreseeable" conditions of use. Actual use test conditions are typically used for kitchenware small appliances or for articles for which it is difficult to separate the different materials that are fixed together. Such articles should be tested as one, applying the test conditions as indicated in the instruction.

The test results need to be recalculated based on the real surface-to-volume ratio according to Article 17 of the plastic Regulation (EU) No 10/2011. However, some exceptions exist, e.g. for very small or large volume articles (V < 500 mL or V > 10 L) or for articles for which it is difficult to determine the amount of food that comes into contact with the article. In these cases "6 dm²/kg food" applies. Similarly, this concept applies for metals and alloys, silicone and rubber, and paper and board. In addition to this concept the Council of Europe developed an alternative approach for metals and alloys called the "envelop volume method".

The following approach should be used for selecting the test conditions and food simulants:

- 1. At first, select the test conditions recommended by the present guide.
- 2. When a label and/or instructions are present on the article, defining limiting conditions of use or providing operating instructions, the test conditions should be adapted accordingly, even if they deviate from those suggested in the first step.
 - Note: The conditions of use indicated on the label and/or on the packaging of the kitchenware or tableware article (including pictures and/or instructions), present the way in which the manufacturer intends the article to be used. However, these instructions should not be used to select the test conditions if they are unrealistic and do not represent the foreseeable use of the article by consumers.
- 3. When no label nor instructions are permanently present on the article, and when several test conditions are suggested, the most severe test condition of the different possibilities for that type of article should be selected.
- 4. Whenever the prescribed test conditions, i.e. contact time and temperature, may physically damage the test specimen to be investigated the migration tests shall be carried out under the "worst foreseeable conditions of use" in which these physical changes do not take place according to section 2.1.3 of annex V of Regulation (EU) No 10/2011.
- 5. If a food simulant causes changes to the test specimen, e.g. swelling, that do not occur with food, this food simulant is not considered as suitable. The migration test should then be performed using food or another equivalent food simulant that does not cause such changes.
- 6. For articles used only under specific conditions (e.g. time, temperature) and/or for specific foods (e.g. dry food only) the selected test conditions and food simulants should be based on those specific conditions of use.
- 7. For materials (e.g. paper and board) that do not withstand the combination of test conditions and food simulants set for plastics, other migration/extraction methods may be defined.

Table 1 provides a non-exhaustive list of examples of articles clustered in material independent classes and subclasses of kitchen and tableware.

Tables 2 to 5 present the relevant test conditions, i.e. contact time and contact temperature, for each class of kitchen articles made of plastics, metals and alloys, silicones and rubbers, and paper and board, respectively. They include food simulants, testing conditions (i) based on the foreseeable worst case conditions of use of the article or (ii) according to the instructions on the label, together with the surface-to-volume (S/V) ratios to be applied when calculating the final migration result. The selection of food simulants is based on the foods expected to be used for a particular subclass.

Table 2 presents the relevant test conditions for migration from plastics and plastic containing articles. When a plastic item can be used in contact with all types of foods, food simulants A, B and D2 are indicated. When a plastic article is used with specific foods only, the relevant food simulants need to be selected according to Annex III of the Regulation (EU) No $10/2011^{(\#)}$.

Table 3 presents the relevant test conditions for migration from metals and alloys articles. For metallic articles, the food simulant is selected from national legislation or from the practical guideline for manufacturers and regulators on "*Metals and alloys used in food contact materials and articles*" published by the Council of Europe. When metallic articles are tested with a food simulant for acidic foods (pH \leq 4.5), additional testing in artificial tap water is not required.

Table 4 presents the relevant test conditions for migration from silicone and rubber articles. In the absence of national legislation and national or Council of Europe recommendations, the food simulants prescribed by Regulation (EU) No 10/2011 for plastic can be applied to silicone and rubbers.

Table 5A presents the relevant test conditions for migration from coated/treated paper and board articles. If the paper and board item includes a barrier layer against fat/grease/water (e.g. a plastic layer) and does not absorb moist and/or oil, and if no loss of physical structure occurs, the test conditions prescribed by Regulation (EU) No 10/2011 for plastic can be applied. When the structural integrity of the paper regarding to the testing conditions prescribed for plastics is unknown, migration conditions as set in Table 5A should be followed in first instance. However, when an alteration of the material is evidenced after the contact phase, the testing conditions of Table 5B should be applied. A case-by-case analysis is necessary.

Table 5B presents "extraction" conditions for coated, uncoated and treated/impregnated paper and board articles that do not withstand migration test conditions and food simulants prescribed by Regulation (EU) No 10/2011 and that lose their physical structure. These methods are selected taking into account the currently available CEN standards and the practical guideline for manufacturers and regulators on "*Paper and Board used in food contact materials and articles*" published by the Council of Europe.

Standards EN 645:1993, 647:1993 and 15519:2007 require to "extract" 10 g of paper whereas EN 14338:2004 requires to "extract" 1 dm² of paper. EN 14338 and 15519 require reporting the test results in mg/dm² whereas EN 645 and 647 do not specify how to report test results. In absence of national requirements migration test results should be reported in mg/dm² taking into account the one-sided area and the grammage of the paper. Test results can be converted into mg/kg of food using the real S/V ratio in actual or foreseen use. For articles where it is impractical to estimate this ratio and for those articles with a capacity < 0.5 L or > 10 L, the conventional factor of 6 dm²/kg of food should be used.

While EN 15519 does not specify when ethanol 95 % <u>or</u> isooctane has to be used for extraction/migration, the last paragraph of section 2.1.3 of Annex V of Regulation (EU) No 10/2011 should be applied (using ethanol 95 % <u>and</u> isooctane). The highest extraction in ethanol 95 % and isooctane shall be used for compliance assessment. If the temperature under the worst foreseeable conditions of intended use exceeds 100 °C the highest extraction in ethanol 95 %, isooctane and food simulant E shall be used for compliance assessment.

Table 6 describes the rationale behind the selection of specific test conditions (time and temperature) for plastics, metals and alloys, silicones and rubbers, and paper and board.

Table 7 lists the changes implemented in this report, when compared to the previous editions.

These harmonised tables were drafted by the Task Force on Kitchenware consisting of representatives of the National Reference Laboratories of Belgium, Germany, Greece, Italy and Spain, DG SANTE, the European Directorate for the Quality of Medicines & Health Care of the Council of Europe, CEN TC 173/WG3, and the Federation of European manufacturers of Cookware and cutlery (FEC). The tables were thoroughly reviewed by the National Reference Laboratories and official control laboratories dealing with food contact materials, in accordance with Article 94 (2)(a) of Regulation (EU) 2017/625. The authors acknowledge their valuable contributions.

In order to improve these guidelines, feedback from users is welcome.

Article 17: Expression of migration test results

Annex III – Food simulants

Table 1: List of food simulants

Table 2: Food category specific assignment of food simulants

Table 3: Food simulant assignment for demonstrating compliance with the overall migration (OM) limit

Annex V – Compliance testing

Table 1: Selection of test time

Table 2: Selection of test temperature

Table 3: Standardised conditions for testing the overall migration (OM)

^(#) Commission Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food (<u>https://europa.eu/!fm68fy</u>)

Table 1 - Kitchenware examples

Main Class	Subclass	Examples
	FPW/CA1	Apron, Bib
Food Preparation Wear	FPW/CA2	Glove
	FPW/CA3	Towel, Wipe, Napkin, Tablecloth, Placemat, Kitchen roll
Food Preparation Utensil for Cold/Ambient use	FPU/CA1	Utensils used at ambient temperature for short time: Rolling pin, Lettuce cutter, Grater, Garlic press, Zester, Vegetable peeler, Apple peeler, Food scale, Apple corer, Apple cutter, Biscuit press, Cherry pitter, Egg separator, Fish scaler, Flour sifter, Herb chopper, Squeezer, Reamer, Mandolin, Wire, Meat tenderiser, Fruit baller, Nutmeg grater, Pastry blender, Mortar and pestle, Roller docker, Pasta cutter, Salad spinner, Julienne peeler, Avocado slicer, Ravioli maker, Vegetable cutter with container, Hamburger press, Coconut scraper, Empanadilla mould type, Meat grinder, Vegetable brush, Cake measuring tape, Cocktail shaker, Coffee measuring spoon
	FPU/CAH1	Utensils used at ambient or hot temperature for short time: Baster, Bottle Top Baster, Pastry spatula, Pastry scraper, Pastry brush, Pastry bag, Egg piercer, Pastry mat, Salad/omelette/fitness shaker, Marinade Syringe, Funnel, Potatoes slicer, Dessert/appetizers ring, Measuring spoon, Measuring cup, Tea net, Filter, Ricer, Food mill, Chocolate thermometer, Chocolate form
	FPU/CAH2	Cutting board (not for storage)
Food Preparation Utensils	FPU/CAH3	Kitchen countertop, Worktop, Bench
for Cold/Ambient or Hot use	FPU/CAH4	Colander, Drum sieve, Chinois, Gravy strainer, Cooling rack
	FPU/CAH5	Bowl
	FPU/CAH6	Microwave materials (only warming up or defrosting)
	FPU/CAH7	Puree masher, Potato masher, Whisk, Tongs-not foreseeable use at temperatures above 100 °C
	FPU/CAH8	Cheese cloth (dairy product), Mat for cheese draining
	FPU/H1	Articles that could be used during cooking/frying/grilling: Spoon, Ladle, Spatula, Tongs, Fondue fork
		Cookware, Cooking items, Microwave cookingware: Cooking/frying pan, Cooking pot, Steamer basket, Lid (sold alone),
	FPU/H2	Spice/fragrance bag, Boil over preventer, Frying pan splatter screen, Bourguignon fork, Cooking ring, Susceptor, Skewer,
Food Preparation Utensils		Microwave cooker
for Hot use	FPU/H3	Bakeware and Ovenware items used up to 1 hour:
	FPU/H3	Cake pan, Gratin dish, Cookie sheet, Muffin pan, Muffin cup, Cooking tray, Oven liner
	FPU/H4	Bakeware and Ovenware items used more than 1 hour: Casserole, Roasting bag, Baking foil, Elastic net, Ring for meat
Food Conving Utopsile	FSU/CA1	Bread Bag, Basket (not for storage)
Food Serving Utensils for Cold/Ambient use	FSU/CA2	Decanter, Fitness/bicycle/drinking bottle, Baby food pouch
Tor Cold/Ambient use	FSU/CA3	Dispenser: Candy dispenser, Honey dispenser, Oil dispenser, Sauce dispenser
	FSU/CAH1	Cup, Glass, Drinkware
	FSU/CAH2	Open flask, Carafe, Can, Jug
Food Conving Litopsils	FSU/CAH3	Bottle
Food Serving Utensils	FSU/CAH4	Baby bottle, Teats
for Cold/Ambient or Hot use	FSU/CAH5	Tableware, Plate, Dishware, Serving stand
	FSU/CAH6	Food tray, Serving board, French fries box, Finger food bag, Snack box, Popcorn box
	FSU/CAH7	Thermos flask, Isothermic drinking beaker
	FSI/CA1	Ice cream scoop, Ice tongues, Ice cube tray
Food Serving Implements		Specific use Cutlery and wine accessories: Cheese knife, Cheese slicer, Grapefruit knife, Salad cutlery, Tomato knife, Oyster
for Cold/Ambient use	FSI/CA2	knife, Butter curler, Honey dipper, Bar pestle, Wine tester, Bottle pourer, Wine chiller
	FSI/CA3	Salt mill, Spice mill, Pepper mill, Herb mill, Salt shaker

Food Serving Implements	FSI/CAH1	Cutlery: Fork, Knive , Spoon, Rice spoon, Sauce spoon, Lobster cracker, Lobster pick, Chopsticks, Teabag squeezer, Pizza cutter, Bread knife, Fillet knife, Pie knife, Cake and pie server, Party picks, Straw
for Cold/Ambient or Hot use	FSI/CAH2	Bottle stopper, Cap, Gasket
	FC/CAH1	Lunchbox, Takeaway box, Pizza box
Food Containers for Cold/Ambient or Hot use	FC/CAH2	Container: Pasta container, Cheese cellar, Butter cellar, Can cover, Garlic/onion keeper, Egg to go box, Bread box, Biscuit box, Storage box, Bag/textile for storage, Foil (not for baking), Jar, Ice cream container
	KSA/CA1	Fridge, Cooler: Koolatron cooler, Frozen Beverage Maker, Mini fridges, Ice box, Kegerator
	KSA/CA2	Grater, Grinder: Coffee grinder, Electric grater, Vegetable chopper, Mini chopper, Peanut and nut butter maker, Wet grinder, Potato peeler
Kitchen Small Appliances	KSA/CA3	Meat grinder and slicer: Sausage stuffer, Meat slicer, Meat grinder, Slicer
	KSA/CA4	Butter churner, Milk shake maker
for Cold/Ambient use	KSA/CA5	Pasta maker, Noodles maker, Electric or manual Roller, Strip Cutter
	KSA/CA6	Squeezer, Juicer, Juice Extractor, Smoothie maker
	KSA/CA7	Yogurt maker
	KSA/CA8	Ice cream maker
	KSA/CAH1	Water dispenser, Water purifier, Water filter, Beverage dispenser, Soda maker, Spare carbonator
	KSA/CAH2	Baby formula maker/warmer, Milk frother
	KSA/CAH3	Blade
Kitahan Small Analianaas	KSA/CAH4	Still spirit
Kitchen Small Appliances	KSA/CAH5	Blender, Agitator, Hand blender, Drink mixer, Mixer, Hand mixer, Electric mill
for Cold/Ambient or Hot use	KSA/CAH6	Melting pot, Food warmer, Chocolate maker
		Heated and Bain-Marie dispenser: Chocolate fountain, Heated sauce dispenser, Soup kettle, Buffet server, Chafing dish, Wet
	KSA/CAH7	bain marie
	KSA/CAH8	Dehydrator
	KSA/H1	Coffee maker, Moka
	KSA/H2	Immersion heater (used for water)
	KSA/H3	Tea pot and boiler: Kettle, Teapot, Eggs Boiler, Water boiler, Tea maker, Samovar, Soy milk maker, Boiler
	KSA/H4	Sous vide cooker
	KSA/H5	Popcorn maker, Cotton candy machine, Gummy and candy maker
	KSA/H6	Steamer, Baby food maker
	KSA/H7	Toaster, Hot dog griller, Waffle maker, Mini cupcake maker, Crepe/pancake maker, Quesadilla Maker
Kitchen Small Appliances	KSA/H8	Fryer, Deep fryer, Fondue/Raclette/Raclette-Pizza set
for Hot use	KSA/H9	Cooker and food processor: Slow cooker, Stirrer, Pressure cooker, Cheese maker, Bread machine, Soup maker, Food processor
	KSA/H10	Grill and oven: Indoor/Outdoor Grill, Infrared oven, Air Fryer, Electric skillet, Electric Griddle , Hotplate, Contact grill, Barbecue grid, Roaster, Combi steamer, Halogen cooking pot, Rotisserie, Electric wok, Meat-grill thermometer
	KSA/part	Parts of assembled Kitchen Small Appliances; Note: parts of the equipment used for storage should be tested separately as containers under appropriate conditions (e.g. FSU/CA2 or FC/CAH1)

version May 2023



Table 2 - Test conditions for plastic kitchenware

			ι	Jse		San	nple p	rep	Те	st typ	e		F	ood/F	ood s	simular	nt			A Conditions food simulants)			S/V				
Main Class	Subclass	cold (< 20 °C)	Room Temperature	hot (> 40 °C)	storage (in months)	cut test specimen	intact article	part of it	actual use article fill	migration cell	(total) immersion	food	A [§]	В	U	D1	D2	Е	time	Temp (°C) Jahol /instructions		Keal	Keal (infant/young)	6 (V < 0.5L or V > 10L)	6 impractical s/v	OM conditions	Notes
Food	FPW/CA1	х	х			х	х		х	х	х	х	х	х			х		0.5 h	40			х		х	0	
Preparation	FPW/CA2	х	x				x#		x		x	x	x	х			х		0.5 h	40					x	0	" or turn inside out
Wear	FPW/CA3	x	х			х				x	х	x	х	х			х		0.5 h	40			х		х	0	
	FPU/CA1	х	х			х	х	х	х		х	х	х	х			х		0.5 h	40	:	х		х	х	0	
	FPU/CAH1	х	х	х		x	х	х	x		х	x	х	х			х		0.5 h	70	:	х		х	х	3	
	FPU/CAH2	х	х	х		х	х			х	х	х	х	х			х		2 h	70					х	3	
	FPU/CAH3	х	х	х		x	х			х	х	x	х	х			х		2 h	70					х	3	
	FPU/CAH4	х	х	х		х	х				х	х	х	х			х		2 h	70		х		х	х	3	
	FPU/CAH5	х	х	х			х		х			x	х	х			х		2 h	70		х		х		2	followed by 24 h at 40°C
		х	х	х	@		х		х			x	х	х			х		10 d	40		х		х		2	
	FPU/CAH6	х	х	х			х	х	х		х	х	х	х					2 h	100 or Reflux		х			x	5	[1] time set as 4*0.5 h
Food		х	х	х			х	х	x		х	x					х		0.5 h	121		х		х	х	5	
Preparation	FPU/CAH7	х	х	х		х	х				х	х	х	х			х		2 h	70					х	3	
Utensils	FPU/CAH8	х	х	х	@	х	х				х	x		х		х			10 d	40	-	x			х	2	if used to cook herbs go to FPU/H2
	FPU/H1			х		х	х				х	х	х	х						100 or Reflux					x	6	[1] time set as 4*0.5 h
				х		x	х				х	x					х		0.5 h	175					х	7	
	FPU/H2			x		x	х		х		х	x	х	х						100 or Reflux		х			x	6	[1] time set as 4*0.5 h
	5011/110			х		x	х	_	х		х	х					x	_	0.5 h	175		x			x	7	
	FPU/H3			х		x	х		х		х	х	х	х					4 h	100 or Reflux		x			x	6	[1] time set as 4*1 h
	5011/114			х		x	х		х		х	х					х		1 h	200		х		х	х	7	
	FPU/H4			х		x	х		x		х	х	х	х					8 h	100 or Reflux		х			×	6	[1] time set as 4*2 h
	5011/044			х		x	x		X		X	X					x		2 h	200	_	x			x	7	
	FSU/CA1 FSU/CA2	x	х				x	х	х		x	X	х	х			х		24 h 24 h	40 40			x		x	2	
			X		0		X	X	X		x	X		X		x		_					х	x		2 2	if hot fill go to FSU/CAH2
	FSU/CA3	x	x		@		У	х	у;		x	X	x	x			x x		10 d 10 d	40 50		x		x		2	[2]
		x x	x x		≤6 >6		y v	x x	y; y;		x x	X X	x x	x x			x		10 d	60		x x		x x		2	[2] [2]
	FSU/CAH1		x		20		,	x	y;		x		x	x			x		24 h	40			x	x	_	2	[2]
	130/CAIL	х	x	x			y v	x	y, y;		x	x x	x	x			x		24 h	40 70				x		2	followed by 24 h at 40 °C, if used for storage [OM2]
	FSU/CAH2	x	x	^			x	^	y,		^	x	^	x		х	^		24 h	40		x	^	x		2	Tollowed by 24 If at 40°C, If used for storage [OW2]
	130/0/112	Â	x	x			x		x			x		x		x			24 h	70		x		x		3	followed by 24 h at 40 °C, if used for storage [OM2]
Food	FSU/CAH3		x	x			x		x			x	x	x		^	х		2 h	70		x		x		3	followed by 24 h at 40 °C, if used for storage [OM2]
Serving	130/0/113	x	x	Â	@		x		x			x	x	x			x		10 d	40		x		x		2	
Utensils		x	x		≦ 6		x		x			x	x	x			x		10 d	50		x		x		2	[2]
		x	x		>6		x		x			x	x	x			x		10 d	60		x		x		2	[2]
	FSU/CAH4		x	x			x	x	x		х	x		x		х			2 h	70			х			3	followed by 24 h at 40 °C, if used for storage [OM2]
	,	x	x		@		x	x	x		x	x				x			10 d	40			x			2	for milk only
					-																						for teats only, (if sold individually, refer to Reg. 10/2011 Art.
			х	х			х	х	х		х	х		х		х			1 h	40			х				17 § 3 and 4)
	FSU/CAH5	х	х	х			х		x		х	х	х	х			х		2 h	70					х	3	
	FSU/CAH6	х	х	х			х	х	х		х	х	х	х			х		2 h	70		х	х	х	х	3	fill with final simulant at 100 %
	FSU/CAH7	x	x	x			x		x			x	x	х			х		24 h	100		x	x	x		4	fill with food simulant at 100 °C and keep the container closed for 24 h at room temp.
	130/CAIT/	^	^	^		1	^		X			^	^	^			^		2411	100		^	^	^		4	closed for 24 if at room temp.

					-						-										-		_		
	FSI/CA1	х			x	х			х	х	x			х				0.5 h	20		х		x	1	
		х		@	x	х			х	х	x			х				10 d	20		х	:	x	1	if used for storage
	FSI/CA2	х	х		x	х			х	х	х	х	х			х		0.5 h	40			:	×	0	
		х	х	@	х	х			х	х	х	х	х			х		24 h	40			:	x	2	
	FSI/CA3	х	х	≤ 6		х	х		х	х	х						х	10 d	50		х	х			[2]
Food		х	х	> 6		х	х		х	х	х						х	10 d	60		х	х			[2]
Serving	FSI/CAH1	х	x x		x	х	х			х	х	х	х			х		0.5 h	70			:	x	3	
Implements		х	x x		х	х	х			х	х	х	х			х		2 h	70			:	x	3	for spoons only
	FSI/CAH2		x x			x			x	x	x	x	х			x		2 h	70		x	x		3	followed by 24 h at 40 °C, if used for storage [OM2], Refer to Reg. 10/2011 Art. 17 § 3 and 4
		х	х	@		х			х	х	x	х	х			х		10 d	40		х	х		2	Refer to Reg. 10/2011 Art. 17 § 3 and 4
		х	х	≤ 6		х			х	х	x	х	х			х		10 d	50		х	х		2	[2], Refer to Reg. 10/2011 Art. 17 § 3 and 4
		x	х	> 6		х			х	х	x	х	х			х		10 d	60		х	х		2	[2], Refer to Reg. 10/2011 Art. 17 § 3 and 4
	FC/CAH1	x	x x			У	х	,	y;x	х	x	х	х			х		2 h	70		x	х		3	followed by 24 h at 40 °C, if use for storage [OM2]
	-, -	x	x x	@		ý	х		y;x	х	x	х	х			x		10 d	40		x	x		2	
Food	FC/CAH2	x	~			y	x		y;x	x				х				10 d	5		x	x		2	
Containers	,	x	x	@		y y	x		y;x	x	x	х	x			х		10 d	40		x	x		2	
		x	x x	≤ 6		y y	x		y;x	x	x	x	x			x		10 d	50		x	x		2	[2]
		x	x x			y y	x		y;x	x	x	x	x			x		10 d	60		x	x			[2]
	KSA/CA1	x	x ^	0		<u>y</u> x	^	x	y, ^		x		X	x	x		x	100	00	x	^		+	2	[2]
	KSA/CA1	x	x			x		x			x	x	x	^	^	x	^			x					
	KSA/CA3	x	x			x		x				x	^			x				x					
											x	x													
	KSA/CA4		x			x		x			x		х		x					x					
	KSA/CA5	х	х			х		х			x				х	х				х					
	KSA/CA6		x			х		х			x		х		х		_			х			-		
	KSA/CA7	х	х			х		х			x		х		х					х					
	KSA/CA8		x			х		х			x			х						x			_		
	KSA/CAH1	х	х х			х		х			x		х	х	х					х					
	KSA/CAH2	х	x x			х		х			х		х		х					х			_		
	KSA/CAH3	х	х х			х	х			х	х	х	х			х		0.5 h	70				x	3	cf. FSI/CAH1
	KSA/CAH4	х	x x			х		х			х		х*		х					х			_		* if pH less than 4.5
Kitchen	KSA/CAH5	х	х х			х		х			х	х	х			х				х					
Small	KSA/CAH6	х	x x			х		х			х	х	х			x				х					
Appliances	KSA/CAH7	х	x x			х		х			x	х	х			х				х					
	KSA/CAH8	х	x x			х		х			х	х	х			х				х					
	KSA/H1		x			х		х			H ₂ O			х						х					H ₂ O: artificial tap water EN16889:2016
	KSA/H2		x			х		х			H ₂ O			х						х					H ₂ O: artificial tap water EN16889:2016
	KSA/H3		х			х		х			x		х	х						х					
	KSA/H4		x			х		х			x	х	х			х				х					
	KSA/H5		x			х		х			x	х	х			х				х					
	KSA/H6		х			х		х			x	х	х			х				х					
	KSA/H7		x			х		х			x	х	х			х				х					
	KSA/H8		x			x		х			x					х				х					
	KSA/H9		x			x		x			x	х	х			x				x					
	KSA/H10		x			x		x			x	x	x			x				x					
	KSA/part	x	x x	-		x		~	x x	(X	x	x				x				x					[3]
		^	~ ^			~			~ ^	. ^	^	^	~			A				^					[0]

[1] cf. Table 2 of Annex V

[2] use (10d, 40°C) if equilibrium is reached [cf. Reg. 10/2011 Annex V, Chapter 2 § 2.1.4.e & Amendment 2016/1416]

[3] select test time and temperature according to worst foreseeable condition use (described in the instructions when available)

@: see Table: Rational

- "y;x": "(total) immersion" applies to "part of it" (x) only, while "article fill" applies to "intact article" (y) and "part of it" (x)
- SM, OM: Specific Migration, Overall Migration
 - s/v: surface-to-volume ratio to calculate final migration result

Food Simulants: A (Ethanol 10 % v/v); B (Acidic acid 3 % w/v); C (Ethanol 20 % v/v); D1 (Ethanol 50 % v/v); D2 (Vegetable oil); E (poly(2,6-diphenyl-p-phenylene oxide)) [cf. Reg. 10/2011 Annex III]

§: Distilled water can be used instead of food simulant A for Overall Migration



Contact: Eddo Hoekstra JRC-EURL-FCM@ec.europa.eu



Table 3 - Test conditions for metal kitchenware

			Us	se		Sam	nple pi	rep	Te	st type	2	tion*		Food/Fo	od simulant	(Release	cific Migration) Conditions od simulants)	ו (only		S/V		gislation*	
Main Class	Subclass	cold (< 20 °C)	Room Temperature	hot (> 40 °C)	storage (in months)	cut test specimen	intact article	part of it	actual use article fill	migration cell	(total) immersion	check national legislation*	, ,	Tood simulant for acidic foods (pH ≤ 4.5)	artificial tap water (cf. EN 16889:2016)	time	Temp (°C)	label/instructions	Real	6 impractical s/v	Envelope method (CoE, Metals & Alloys)	OM - check national legislation *	Notes
Food	FPW/CA1	х	х			х	х		х	х	х	x)	x x		0.5 h	40			х		х	
Preparation	FPW/CA2	х	х				х		х		х	x)	x x		0.5 h	40			х		х	
Wear	FPW/CA3	х	х			х				х	х	x)	x x		0.5 h	40			х		х	
	FPU/CA1	х	х			х	х	х	х		х	x	,	x x		0.5 h	40		х	х	х	х	
	FPU/CAH1	х	х	х		х	х	х	х		х	x	,	x x		0.5 h	70		х	х	х	х	
	FPU/CAH2	х	х	x		х	х			х	х	x)	x x		2 h	70			х		х	
	FPU/CAH3	x	х	x		х	х			х	х	x)	x x		2 h	70			х		х	
	FPU/CAH4	х	х	х		х	х				х	x)	x x		2 h	70		х	х	x	х	
	FPU/CAH5	x	х	x			х		х			x)	x x		2 h	70		х			х	followed by 24 h at 40 °C
		х	х	x	@		х		х			x	,	х х		10 d	40		х			х	
	FPU/CAH6	х	х	x			х	х	х		х	x		х		2 h	100 or Reflux	х	х	х	x	х	
Food		х	х	x			х	х	х		х	x	,	x				х	х	х	x	х	
Preparation	FPU/CAH7	х	х	x		х	х				х	x)	x x		2 h	70			х	x	х	
Utensils	FPU/CAH8	х	х	х	@	х	х				х	x)	x x		10 d	40		х	х		х	if used to cook herbs go to FPU/H2
	FPU/H1			х		х	х				х	x		х		2 h	100 or Reflux	х		х	х	х	
				x		х	х				х	x	,	x				х		х	x	х	
	FPU/H2			х		х	х		х		х	x		х		2 h	100 or Reflux	х	х	х	x	х	
				x		х	х		х		х	x	,	x				х	х	х	x	х	
	FPU/H3			x		х	х		х		х	x		х		2 h	100 or Reflux	х	х	х	x	х	
				x		х	х		х		х	x	,	x				х	х	х	x	х	
	FPU/H4			x		х	х		х		х	x		х		2 h	100 or Reflux	х	х	х	x	х	
				х		х	х		х		х	x)	x				х	х	х	х	х	
	FSU/CA1	х	х				х	х	х		х	x)	x x		24 h	40		х	х		х	
	FSU/CA2	х	х				х	х	х		х	x)	x x		24 h	40		х			х	if hot fill go to FSU/CAH2
	FSU/CA3	х	х		@		у	х	у;	х	х	x	>	х х		10 d	40		х			х	
		х	х		≤6		у	х	у;	х	х	x)	x x		10 d	50		х			х	
		х	х		> 6		у	х	у;	х	х	x)	х х		10 d	60		х			х	
	FSU/CAH1	х	х				у	х	у;	х	х	x)	x x		24 h	40		x			х	
			х	х			у	х	у;	х	х	x		x x		2 h	70		x			х	followed by 24 h at 40 °C, if used for storage
F	FSU/CAH2	х	х				х		x			x		x x		24 h	40		x			х	
Food			х	х			х		х			x)	x x		2 h	70		x			х	followed by 24 h at 40 °C, if used for storage
Serving	FSU/CAH3		х	x			х		x			x	'	x x		2 h	70		x			х	followed by 24 h at 40 °C, if used for storage
Utensils		х	х		@		х		х			x	>	x x		10 d	40		x			х	
		х	х		≤6		х		x			x	'	x x		10 d	50		x			х	
		х	х		> 6		х		x			x		x x		10 d	60		x			х	
	FSU/CAH4		х	x			х	х	x		х	x)	x x		2 h	70		x			х	followed by 24 h at 40 °C, if used for storage
		х	х		@		х	х	х		х	x)	x	х	10 d	40		x			х	for milk only
	FSU/CAH5	х	х	х			х		x		х	×		x x		2 h	70		x	х		х	
	FSU/CAH6	х	х	х			х	х	x		х	x)	x x		2 h	70		x	х		х	
	FSU/CAH7	x	x	x			х		х			x	,	x x		24 h	100		x			х	fill with food simulant at 100 °C & keep the container closed for 24 h at RT

	FSI/CA1												1			0.5 h	20						
	FSI/CAI	x					х		x		х	х	×		х				x	х	х	×	
	501/010	х			@	х	х		х		х	x	x		х	10 d	20		x	х	х	x	if used for storage
	FSI/CA2	x	х		_	х	х		х		х	x	X	х		0.5 h	40			х	х	X	
		х	х		@	х	х		x		х	х	x	х		24 h	40			x	x	x	
Food	FSI/CA3	х	х		≤ 6		х	x	х		х	х	x		х	10 d	50		x			x	
Serving		х	Х		> 6		х	х	х		Х	х	X		Х	10 d	60		х			x	
Implements	FSI/CAH1	х	х	х		х	х				х	x	x	х		0.5 h	70			х	х	x	
		х	х	х		х	х				х	х	x	х		2 h	70			х	х	x	for spoons only
	FSI/CAH2		х	х			х	x	х		х	x	X	х		2 h	70		х			×	followed by 24 h at 40 °C, if used for storage
		х	х		@		х	x	х		х	x	x	х		10 d	40		х			X	
		х	х		≤6		х	x	х		х	х	X	х		10 d	50		х			×	
		х	х		> 6		х	х	Х		Х	х	x	х		10 d	60		х			x	
	FC/CAH1	х	х	х			У	x	у;	х	х	x	x	х		2 h	70		x			×	followed by 24 h at 40 °C, if used for storage
		х	х	х	@		У	х	у;	x	х	х	x	х		10 d	40		х			x	
Food	FC/CAH2	х					У	x	у;	х	х	x	X		х	10 d	5		х			×	
Containers		х	х		@		У	x	у;	х	х	х	x	х		10 d	40		х			x	
		х	х	х	≤6		У	x	у;	х	х	х	x	х		10 d	50		х			x	
		х	х	х	> 6		у	х	у;	х	Х	х	x	х		10 d	60		х			x	
	KSA/CA1	х	х				х		х			х	x	х				х				x	
	KSA/CA2	х	х				х		х			х	x	х				х				x	
	KSA/CA3	х	х				х		х			х	x		х			х				x	
	KSA/CA4	х	х				х		х			х	x	х				х				x	
	KSA/CA5	х	х				х		х			х	x		х			х				x	
	KSA/CA6	x	х				х		х			x	x	х				х				x	
	KSA/CA7	х	х				х		х			х	x	х				х				x	
	KSA/CA8	х	х				х		х			х	x	х				х				x	
	KSA/CAH1	х	х	х			х		х			х	x	х				х				x	
	KSA/CAH2	x	х	х			х		х			x	x	х				х				x	
	KSA/CAH3	х	х	х			х	x			х	x	x	х						х	х	x	cf. FSI/CAH1
	KSA/CAH4	x	х	х			х		х			x	x	х				х				×	
Kitchen	KSA/CAH5	х	х	х			х		х			x	x	х				х				x	
Small	KSA/CAH6	х	х	х			х		х			x	x	х				х				x	
Appliances	KSA/CAH7	х	х	х			х		х			х	x	х				х				x	
	KSA/CAH8	х	х	х			х		х			х	x	х				х				x	
	KSA/H1			х			х		х			х			х			х				x	Food corresponds to artificial water
	KSA/H2			х			х		х			х			х			х				x	Food corresponds to artificial water
	KSA/H3			х			х		х			x	x	х				х				x	
	KSA/H4			х			х		х			x	x	х				x				x	
	KSA/H5			х			х		х			x	x	х				х				x	
	KSA/H6			х			х		х			x	x	х				х				x	
	KSA/H7			х			х		х			x	x	х				х				x	
	KSA/H8			х			х		х			x	x		х			х				x	
	KSA/H9			х			х		х			x	x	х				х				x	
	KSA/H10			х			х		х			x	x	х				х				x	
	KSA/part	x	х	х			x		x	x	x	x	x	х				x				x	[1]
	Nony pure	^	^	^			^		^	~	^	_ ^	L ^	^		1		^	I			L ^	[1-1

* When no national legislation is available, national recommendations, or Council of Europe recommendations, or other relevant guidelines shall be taken into account for compliance assessment.

[1] select test time and temperature according to worst foreseeable condition use (described in the instructions when available)

"y;x": "(total) immersion" applies to "part of it" (x) only, while "article fill" applies to "intact article" (y) and "part of it" (x)

@: see Table: Rational

s/v: surface-to-volume ratio to calculate final release result





Table 4 - Test conditions for silicone & rubber kitchenware

			ι	Jse .		Sam	ple pre	p	Tes	t type				F	-000	d/Foo	ıd simı	ulant			M Conditions food simulants)			s/v			
Main Class	Subclass	cold (< 20 °C)	Room Temperature	hot (> 40 °C)	storage (in months)	cut test specimen	intact article	part of it	article fill	migration cell	(total) immersion	check national legislation*	food	A	-	д (10 20	1 ш	time	Temp (°C)	ומטפון ווואנו עכנוטווא מספן		keal (Intant/young) 6 (V < 0.5L or V > 10L)	practic	OM - check national legislation*	Notes
Food	FPW/CA1	x	х			х	х		х	х	х	х	х	х)	x		х	(0.5 h	40			х	х	x	
Preparation	FPW/CA2	x	х				x#		х		х	х	x	х	,	x		х		0.5 h	40				х	x	" or turn inside out
Wear	FPW/CA3	x	х			х				х	х	х	х	х)	x		х	c .	0.5 h	40			х	х	x	
	FPU/CA1	x	х			х	х	x	х		х	х	х	х	,	x		x	(0.5 h	40	,	(х	х	x	
	FPU/CAH1	x	х	х		х	х	x	х		х	х	х	х	;	x		х	(0.5 h	70	>	(х	х	х	
	FPU/CAH2 FPU/CAH3	x	х	x		x	x			x	x	x	x	х	;	x		х	5	2 h	70				х	×	
	FPU/CAH4	x	х	х		х	х				х	х	х	х	;			x		2 h	70	>		х	х		
	FPU/CAH5	x	х	х	_		х		х			х	х	х)			х		2 h	70	>		х		x	followed by 24 h at 40°C
	5911/04110	x	х	х	@		х		х			х	x	х)			х	(10 d	40)		х		x	
5	FPU/CAH6	×	х	x				x	х		x	х	x	х	;	x				2 h	100 or Reflux)		х		x	[1] time set as 4*0.5 h
Food		x	x	x				x	х		x	X	X					×	-	0.5 h	121)	C	х		x	
Preparation	FPU/CAH7	x	х	х	0	х	х				х	х	х	х)			х	(2 h	70				х	x	
Utensils	FPU/CAH8 FPU/H1	x	х	X	@	X	X				X	X	X)			<		10 d 2 h	40 100 or Reflux	`	(x		X	if used to cook herbs go to FPU/H2
	FPU/HI			x x		x x	x x				x x	x	x x	х	,	x		x		0.5 h	100 of Kellux 175				x x	x x	[1] time set as 4*0.5 h
	FPU/H2			x		x	x		x		x	x x	x	х	,	~		^	•	0.3 h	100 or Reflux	,	,	x		x	[1] time set as 4*0.5 h
	11 0/112			â		x	x		x		x	x	x	^		^		x	r	0.5 h	175			x	x	x	
	FPU/H3			x		x	x		x		x	x	x	x)	x			•	4 h				x	x	x	[1] time set as 4*1 h
				x		x	x		x		x	x	x	~		~		х	c .	1 h	200			x	x	x	
	FPU/H4			х		х	х		х		х	х	x	х	,	x				8 h	100 or Reflux	•		х	х	x	[1] time set as 4*2 h
				x		х	х		х		x	х	x					x		2 h	200	,	c	х	х	x	
	FSU/CA1	x	х				х	x	х		х	х	х	х	;	x		х	(24 h	40	>	(х х	х	х	
	FSU/CA2	x	х				х	x	х		х	х	х)	x	;	ĸ		24 h	40)	c	x x		x	if hot fill go to FSU/CAH2
	FSU/CA3	x	х		@		у	x	у;х		x	х	x	х)	x		х	(10 d	40	>		х		x	
		x	х		≤ 6		у	x	у;х		х	х	х	х	,	x		х	c	10 d	50	>	c	х		x	[2]
		х	х		>6		у	х	у;х		х	х	х	х)	x		х	<u>د</u>	10 d	60	>	c	х		х	[2]
	FSU/CAH1	x	х					x	у;х		х	х	х	х	,			х		24 h	40			х х		x	
			х	х	_		у	x	у;х		х	х	х	х		x		x		2 h	70	_		x x		x	followed by 24 h at 40 °C, if used for storage
	FSU/CAH2	x	х				х		х			х	х		,			ĸ		24 h	40	>		х		x	
	FELLONIC		х	х			х		х			х	х			x		ĸ		2 h	70)		х		x	followed by 24 h at 40 °C, if used for storage
Food	FSU/CAH3		x	х	6		x		x			x	X	x)			x		2 h	70			х		x	followed by 24 h at 40 °C, if used for storage
Serving		X	x		@ ≤6		x		x			x	X	x)			x		10 d 10 d	40 50			x		X	(3)
Utensils		x x	x x		≤ 6 > 6		x x		x x			x x	x	x x	; ;			x		10 d 10 d	50 60			x x		x x	[2]
	FSU/CAH4		x	x	20			x	x		x	x	x	~		x x		< ×		2 h	70	ľ		x		x	[2] followed by 24 h at 40 °C, if used for storage
	130/04114	x	x	^	@			x	x		x	x	x		,	~		` <		10 d	40			x		x	for milk only
		^	~		e		~	^	~			~	^					•		10 0	10			~			for teats only, (if sold individually,
			х	х			х	x	х		х	х	х)	x	:	ĸ		1h	40			х		x	refer to Reg. 10/2011 Art. 17 § 3 and 4)
							v	v					A.C.							24 h	40			v			additionally, for teats, FS = Artificial saliva (AS); (Directive 93/11/EEC; EN 12868:2017)
	FSU/CAH5		x x	x x			x x	x	x x		x x	x x	AS	~	,	~		x	,	24 n 2 h	40 70	,	,	x x x	х	x	1 3 - Altinuu Saiva (AS), (Diecuve SS/11/2EC, EN 12000.2017)
	FSU/CAH6	x	x	x				x	x		x	x	x x	x	,			x		2 h	70	_		x x x x		x	
			~	^			~		~		^	~	^	~	,			^	•	211	,0	1		~ ^	A		fill with food simulant at 100 °C and keep the
	FSU/CAH7	х	х	х			х		х			х	х	х)	x		х	(24 h	100	>	(x x		х	container closed for 24 h at room temp.

	501/011															_	0.51						
	FSI/CA1	x				х	х	х	х	x			х				0.5 h	20		х	х	x	
		х		@		х	х	х	х	х			х				10 d	20		х	х	x	if used for storage
	FSI/CA2	x x			х	х	х	х	х	х	х	х			х		0.5 h	40			х	х	
		хх		@	х	х	x	х	х	х	х	х			х		24 h	40			х	х	
	FSI/CA3	x x		≤6		х х	х	х	х	х					;	x	10 d	50		x :	(x	[2]
Food		x x		>6		x x	х	х	х	х						х	10 d	60		x	(х	[2]
Serving	FSI/CAH1	хх	х		х	х х		х	х	х	х	х			х		0.5 h	70			х	x	
Implements		x x	х		х	x x		х	х	х	х	х			х		2 h	70			х	x	for spoons only
	FSI/CAH2	x	х			х	х	х	х	х	х	х			х		2 h	70		x	(x	followed by 24 h at 40 °C, if used for storage ,
																							Refer to Reg. 10/2011 Art. 17 § 3 and 4
		x x		@		х	х	х	х	х	х	х			х		10 d	40		x		x	Refer to Reg. 10/2011 Art. 17 § 3 and 4
		x x		≤6		х	х	х	х	х	х	х			х		10 d	50		x	(x	[2], Refer to Reg. 10/2011 Art. 17 § 3 and 4
		x x		>6		х	x	х	х	х	Х	х			х		10 d	60		x :	(х	[2], Refer to Reg. 10/2011 Art. 17 § 3 and 4
	FC/CAH1	x x	x			y x	y;x	х	х	х	х	х			х		2 h	70		x :	(x	followed by 24 h at 40 °C, if use for storage [OM2]
		x x	x	@		y x	y;x	х	х	х	х	х			х		10 d	40		x	(x	
Food	FC/CAH2	x				y x	y;x	х	х				х				10 d	5		x	(x	
Containers		x x		@		y x	y;x	х	x	x	х	х			х		10 d	40		x	(x	
		x x	x	≤6		y x	y;x	х	x	x	х	х			х		10 d	50		x	(x	[2]
		x x	x	>6		y x	y;x	х	x	x	х	х			х		10 d	60		x	(x	[2]
	KSA/CA1	x x				x	x		х	x		х	х	х	:	x			х			x	
	KSA/CA2	x x				x	x		x	x	х	х			x				х			x	
	KSA/CA3	x x				х	х		х	х	х				х				х			x	
	KSA/CA4	x x				x	x		x	x		х		х	x				х			x	
	KSA/CA5	x x				x	х		x	х				х	х				х			x	
	KSA/CA6	x x				х	х		x	x		х		х					х			x	
	KSA/CA7	x x				x	х		x	x		х		х					х			x	
	KSA/CA8	x x				x	x		х	x			х						х			x	
	KSA/CAH1	x x	х			х	х		х	х		х	х	х					х			x	
	KSA/CAH2	x x	x			x	х		х	x		х		х					х			x	
	KSA/CAH3	x x	x			x x		x	x	x	х	х			х		0.5 h	70			х	x	cf. FSI/CAH1
	KSA/CAH4	x x	x			x	x		x	x		x*		x					х			x	* if pH less than 4.5
Kitchen	KSA/CAH5	x x	x			x	x		x	x	х	x			х				x			x	
Small	KSA/CAH6	x x	x			x	x		x	x	x	x			x				x			x	
Appliances	KSA/CAH7	x x	x			x	x		x	x		x			x				x			x	
	KSA/CAH8	x x	x			x	x		x	x		x			x				x			x	
	KSA/H1		x			x	x		x	H ₂ O	~	~	х						x			x	H ₂ O: artificial tap water EN16889:2016
	KSA/H2		x			x	x		x	H ₂ O			x						x			x	H ₂ O: artificial tap water EN16889:2016
	KSA/H3		x			x	x		x	x		х	x						x			x	2
	KSA/H4		x			x	x		x	x	х	x			x				x			x	
	KSA/H5		x			x	x		x	x	x	x			x				x			x	
	KSA/H6		x			x	x		x	x		x			x				x			x	
	KSA/H7		x			x	x		x	x		x			x				x			x	
	KSA/H7		x			x x	x		x	x		~			x				x			x	
	KSA/H9		x			x	x		x	x	х	х			x				x			x	
	KSA/H9		_				x															x	
		N N	x			x		× ×	X	X	X	X		_	X			_	X		_	-	[3]
	KSA/part	хх	х			х	x	х х	х	х	х	Х			х				х			х	[3]

* When no national legislation is available, national recommendations, or Council of Europe recommendations, or other relevant guidelines shall be taken into account for compliance assessment.

[1] cf. Table 2 of Annex V

[2] use (10d, 40°C) if equilibrium is reached [cf. Reg. 10/2011 Annex V, Chapter 2 § 2.1.4.e & Amendment 2016/1416]

[3] select test time and temperature according to worst foreseeable condition use (described in the instructions when available)

@: see Table: Rational

"y;x": "(total) immersion" applies to "part of it" (x) only, while "article fill" applies to "intact article" (y) and "part of it" (x)

SM, OM: Specific migration, Overall Migration

s/v: surface-to-volume ratio to calculate final migration result

Food Simulants: A (Ethanol 10 % v/v); B (Acidic acid 3 % w/v); C (Ethanol 20 % v/v); D1 (Ethanol 50 % v/v); D2 (Vegetable oil); E (poly(2,6-diphenyl-p-phenylene oxide)) [cf. Reg. 10/2011 Annex III]



Contact: Eddo Hoekstra JRC-EURL-FCM@ec.europa.eu

version May 2023



Table 5A - Migration test conditions for paper & board kitchenware

			Us	se		San	nple p	rep	-	Test t	уре				Foo	d/Fo	od sir	mula	nt			Conditions od simulants)		S,	/v			
Main Class	Subclass	cold (< 20 °C)	Room Temperature	hot (> 40 °C)	storage (in months)	cut test specimen	intact article	part of it	actual use	article fill	migration cell	(total) immersion	check national legislation*	food	А	В	U	D1	D2 F	1	time	Temp (°C)	Real	Real (infant/young)	6 (V < 0.5L or V > 10L)	6 impractical s/v	OM - check national legislation*	Notes
Food	FPW/CA1	х	х			у	х			х	у		х	х	х	х			х		0.5 h	40		х		х	х	
Preparation	FPW/CA2																											
Wear	FPW/CA3	x	х			х					х		x	Х	х	х			х		0.5 h	40		х		Х	х	
	FPU/CA1																											
	FPU/CAH1	x	х	х		У	х			х	У		x	х	х	х			х		0.5 h	70	х		х	х	х	
	FPU/CAH2																											
	FPU/CAH3																											
	FPU/CAH4												_							_								
	FPU/CAH5	X	х	х		У				х	У		x		х				х		2 h	70	х		х		х	followed by 24 h at 40°C
		x	х	х	@	У	х			х	у		x	х	х	х			Х		10 d	40	х		х		х	
	FPU/CAH6	X	х	х		У	х			х	У		x	х	х	х					2 h	100 or Reflux	х		х	х	х	[1] time set as 4*0.5 h
Food		х	х	х		У	х			х	У		x	х					х		0.5 h	121	х		х	х	х	
Preparation	FPU/CAH7																											
Utensils	FPU/CAH8																											
	FPU/H1																											
	FPU/H2			х		У	х			х	у		x	х	х	х					2 h	100 or Reflux	х		х	х	х	[1] time set as 4*0.5 h
				х		y	х			х	y		x	х					х		0.5 h	175	х		х	х	x	
	FPU/H3			х		y	х			х	y		x	х	х	х					4 h	100 or Reflux	х		х	х	х	[1] time set as 4*1 h
				x		y					ý		x	х					х		1 h	200	х		х	х	x	
	FPU/H4			х		ý	х				ý		x		х	х					8 h	100 or Reflux			х	х	x	[1] time set as 4*2 h
				х		y	х			х	y		x	х					х		2 h	200	х		х	х	x	

												_	_														· · · · · · · · · · · · · · · · · · ·
	FSU/CA1	х	х			У	х			(у	x	×	(х	х		х		24 h	40	x	х	х	х	х	
	FSU/CA2																										
	FSU/CA3	х	х		@	у	х	х		(У	x	×	(x	х		х		10 d	40	x		х		х	
		x	х		≤6		х	х		<	v	x		(x	х		х		10 d	50	x		х		х	[2]
		x	х		> 6	v	х	х	ļ ;	<	v	x		(x	х		х		10 d	60	x		х		х	[2]
Food	FSU/CAH1	x				v	х	x		<	v	x	_		x			x		24 h	40	x	x	x		x	
Serving			х	х		v	х	х		<	v	x			x			х		2 h	70	x	х	х		х	followed by 24 h at 40 °C, if used for storage
Utensils	FSU/CAH2					ĺ,					1																
	FSU/CAH3																										
	FSU/CAH4																										
	FSU/CAH5	x	х	х		v	х			(y	x	, x	,	x	v		х		2 h	70	x	х	х	х	х	
	FSU/CAH6		x				x	v			y V	x		<				x		2 h	70				x	x	
	FSU/CAH7	^	^	^		У	^	^		•	У	^	1	•	^	^		^		211	70	^	^	^	^	^	
	· · · · · · · · · · · · · · · · · · ·																										
	FSI/CA1																										
Feed	FSI/CA2																		_								
Food	FSI/CA3	х			≤6		х			(х								х	10 d	50		х		х		[2]
Serving		х	Х		> 6		х	Х	1	(Х	X	×	<					Х	10 d	60		Х		Х	Х	[2]
Implements	FSI/CAH1	х	х	х		х	х	х			х	x	×	(x	х		х		2 h	70				х	х	
	FSI/CAH2																										
	FC/CA111																			2 h	70						followed by 24 h at 40 °C, if use for storage [OM2]
	FC/CAH1		х	х		У	х	х		(x		(х		2 h	70	x		х			Tollowed by 24 fl at 40 °C, if use for storage [UIVI2]
		х	х	х	@		х	х		<	У	X		(x	Х		х		10 d	40	x		х		х	
Food	FC/CAH2	х				У	х	х	2	<	У	X					х			10 d	5	x		х		х	
Containers		х	х		@	У	х	х	1	(У	X			x	х		х		10 d	40	X		х		х	
		х	х	х	≤6	У	х	х	1	<	У	X	×	(x	х		х		10 d	50	x		х			[2]
		х	х	Х	>6	у	х	х	1	(У	х	×	(х	Х		Х		10 d	60	х		Х		х	[2]

* When no national legislation is available, national recommendations, or Council of Europe recommendations, or other relevant guidelines shall be taken into account for compliance assessment.

[1] cf. Table 2 of Annex V

[2] use (10d, 40°C) if equilibrium is reached [cf. Reg. 10/2011 Annex V, Chapter 2 § 2.1.4.e & Amendment 2016/1416]

@: see Table: Rational

"y": "migration cell" applies to "cut test specimen" only

SM, OM: Specific migration, Overall Migration

s/v: surface-to-volume ratio to calculate final migration result

Food Simulants: A (Ethanol 10 % v/v); B (Acidic acid 3 % w/v); C (Ethanol 20 % v/v); D1 (Ethanol 50 % v/v); D2 (Vegetable oil); E (poly(2,6-diphenyl-p-phenylene oxide)) [cf. Reg. 10/2011 Annex III]



Contact: Eddo Hoekstra <u>JRC-EURL-FCM@ec.europa.eu</u>

version June 2023



Table 5B - "Extraction" test conditions for paper & board kitchenware

			Use		Sam	ple prep	Test	type		Solv	vent/Fo	od simul	lant	t/T Con	ditions					
Main Class	Subclass	cold (< 20 °C)	Room Temperature	hot (> 40°C) storage (in months)	cut test specimen	ntact article	migration cell	(total) immersion	check national legislation*	pure water type 1 (ISO 3696:1987)	sooctane	95 % ethanol	Ш	time	Temp (°C)	Real	Real (infant/young)	6 (V < 0.5L or V > 10L)	6 impractical s/v	Notes
	FPW/CA1	х	х		х			х	х	x				24 h	23		x		x	
Food Preparation	FPW/CA2	x	х		x			х	x		х	х		2 h	20		х		х	
Wear	FPW/CA2	x	x		x			х	x	х				24 h	23		х		х	
Wedi	11 W/ 6/15	x			x			x	x	~	х	х		2 h	20		x		x	
	FPU/CA1																			
	FPU/CAH1	х	х	x	x			х	х	х				24 h	23	х		х	х	
		x	х	x	x			х	х		х	х		2 h	20	x		х	х	
				x	x			х	x	х				2 h	80	x		х	х	For filters and tea bags only
	FPU/CAH2	X	х	x	x		х		х				х	0.5 h	70	x		х	х	
	FPU/CAH3																			
	FPU/CAH4																			
	FPU/CAH5	x		x	x			х	х	х				24 h	23	x		х		
		x		x	x			х	x		х	х		2 h	20	x		х		
		x		x	x x		x	.,	X				х	2 h 24 h	70 23	x		x		followed by 24 h at 40 °C, if used for storage
		X X		x @ x @				x x	x x	х	x	х		24 fi 24 h	23	x x		x x		
		x		x @			x	~	x		~	~	х	10 d	40	x		x		
Food Preparation	FPU/CAH6	x	x	x	x			х	х	х				24 h	23	x		х	х	
Utensils		x		x	x			х	х		х	х		2 h	20	x		х	х	
010113113		x	x	×	x		х		х				х	0.5 h	121	x		х	х	
	FPU/CAH7 FPU/CAH8																			
	FPU/CAH8 FPU/H1																			
	FPU/H2			x	x			х	x	х				2 h	80	x		х	х	
				x	x			х	x		х	x		2 h	60	x		х	х	
				x	x		х		х				х	0.5 h	175	x		х	х	
	FPU/H3			×	x			х	х	х				2 h	80	x		х	х	
				x	X			х	X		х	х	X	2 h 1h	60 200	x		X	x	
	FPU/H4			x x	x x		x	x	x x	x			х	2 h	80	x x		x x	x x	
				x	x			x	x	~	x	x		2 h	60	x		x	x	
				x	x		x		x				х	2 h	200	x		x	x	

		-					_		_							1			
	FSU/CA1	x	х			х		х	x	х				24 h	23	х	х	х	x
		x	х			х		х	x		х	х		2 h	20	х	х	х	x
		x	х			х	x		x				х	24 h	40	х	х	х	X
	FSU/CA2																		
	FSU/CA3	x	х		х	х		х	x	х				24h	23	x		х	all storage periods included
		x	х		x	х		х	x		х	х		24h	20	x		х	all storage periods included
		x	х		@	х	x		x				х	10 d	40	х		х	
		x	х		≤ 6	х	x		x				х	10 d	50	x		х	
		x	х		>6	х	x		x				х	10 d	60	x		х	
Food	FSU/CAH1	x	х	х		х		х	x	х				24 h	23	x	х	х	
Serving		x	х	x		х		х	x		x	х		2 h	20	x	х	х	
Utensils	FSU/CAH2																		
	FSU/CAH3																		
	FSU/CAH4																		
	FSU/CAH5	x	х	x		x		х	x	x				24 h	23	x	х	х	x
		x		x		x		х	x		х	x		2 h	20	x	х	х	x
		x	x	x		x	x	~	x		~	~	х	2 h	70	x	x		x
	FSU/CAH6	x		x		x		х	x	х			~	24 h	23	x	x		x
	150/0/110	x		x		x		x	x	~	х	х		2 h	20	x	x	x	
			x			x	x	~	x		~	A	х	2 h	70	x		x	
	FSU/CAH7		^	^		^			^				~	211	70	^	^	^	A
	FSI/CA1																		
	FSI/CA2																		
Food	FSI/CA3	x	v		≤6	x	x		x				х	10 d	50	x		х	
Serving	FSI/CAS	x			≥0 >6		x		x				x	10 d	50 60	x		x	
Implements	FSI/CAH1		x		/0	x		x	x	х				24 h	23	×		*	x
inplements	FSI/CAHI									~				24 fi 2 h	23				
		x	х	х		x		х	x		х	х		2 n	20				x
	FSI/CAH2					~	-							24 b	22				
Food Containers	FC/CAH1	x		x		x	1	х	x	х				24 h	23	x		х	
		x	х	x		x	1	х	x		х	х		2 h	20	x		х	
		x	х	x		x	x						х	2 h	70	х		х	followed by 24 h at 40 °C, if used for storage
		x	х	x	@	x	1	х	x	х				24 h	23	х		х	
		x	х	x	@	х	1	х	x		х	х		24 h	20	х		х	
		х	х	х	@	х	x		х				х	10 d	40	х		х	
	FC/CAH2	x	х	x	х	x		х	x	х				24 h	23	х		х	all storage periods included
		x	х	x	х	х		х	x		х	х		24 h	20	х		х	all storage periods included
		x	х	x	@	х	x		x				х	10 d	40	x		х	
		x	х	x	≤ 6	х	x		x				х	10 d	50	х		х	
		x	х	x	> 6	х	x		x				х	10 d	60	x		х	
		х	х	х	> 6	х	x		x				х	10 d	60	х		х	

* When no national legislation is available, national recommendations, or Council of Europe recommendations, or other relevant guidelines shall be taken into account for compliance assessment

@: see Table: Rational

s/v: surface-to-volume ratio to calculate final result

Food Simulants: E (poly(2,6-diphenyl-p-phenylene oxide)) [cf. Reg. 10/2011 Annex III]

version June 2023



Contact: Eddo Hoekstra JRC-EURL-FCM@ec.europa.eu

Rational for the selection of test time and temperature (Specific Migration)

	temperature	Sub-class	Rational/justification
0.5 h	20 °C	FSI/CA1	According to Regulation 10/2011, for utensils in contact with food for a short time (≤ 0.5 h)
			at cold temperature (refrigerated), these test conditions apply: 20 °C for 0.5 h.
0.5 h	40 °C	FPW/CA1-3	According to Regulation 10/2011:
		FPU/CA1	- for utensils in contact with food for a short time (≤ 0.5 h) at ambient temperature; or
		FSI/CA2	- for gloves, placemats and tablecloths, used for ≤ 2 h at ambient temperature,
			having a short contact time (≤ 0.5 h) with the same portion of food;
0.51	70.00	5311/04114	these test conditions apply: 40 °C for 0.5 h.
0.5 h	70 °C	FPU/CAH1	According to Regulation 10/2011, for utensils in contact with hot food (\leq 70 °C)
		FSI/CAH1	for a short time (≤ 0.5 h) these test conditions apply: 70 °C for 0.5 h.
		KSA/CAH3	
1 h	40 °C	FSU/CAH4	Foods may be in contact with these articles for short periods of time at temperatures up to 40 °C.
2 h	70 °C	FPU/CAH2-4	Accorging to Regulation 10/2011, for utensils in contact with food for short periods of time
		FPU/CAH7	at temperatures between 70 and 100 °C (cf. "hot fill"), these test conditions apply:
		FSU/CAH3-6	2 hours at 70 °C.
		FSI/CAH1-2	
	2 h at 70 °C	FPU/CAH5	Foods may be in contact with these utensils for short periods of time at temperatures between
	followed by	FSU/CAH1-4	70 and 100°C. The food/beverage could then be stored in the same "container" for a day at room
	24h at 40 °C	FSI/CAH2	temperature or colder. According to Regulation 10/2011 these test conditions apply:
	2411 dt 40 °C	FC/CAH1	2 h at 70 °C (cf. hot fill) followed by 24 h at 40 °C.
		FC/CAHI	
24 h	40 °C	FSU/CA1-2	According to Regulation 10/2011, for utensils in contact with food (drinkware, tableware and
		FSU/CAH1-2	cutlery used for cold and RT purpose ONLY) for up to 1 day at ambient temperature, these test
		FSI/CA2	conditions apply: 24 h and 40 °C.
24	400 %0		
24 h	100 °C	FSU/CAH7	Fill with food simulant @ 100 °C and keep the container closed for 24 h - as real use for thermos
10 d	5 °C	FC/CAH2	According to Regulation 10/2011,
			- for articles in contact with any food at frozen and refrigerated conditions.
10 d	20 °C	FSI/CA1	According to Regulation 10/2011,
10 0	20 0	1 31/CA1	- for utensils in contact with food for more than 30 days at frozen temperature.
10 d	40 °C	FPU/CAH5	According to Regulation 10/2011,
		FPU/CAH8	- for utensils in contact with food for more than 30 days at refrigerated or frozen temperature,
		FSU/CAH3-4	including hot-fill conditions and/or heating up to 70 °C \leq T \leq 100 °C for maximum t = 120/2^((T-
		FSU/CA3	70)/10) minutes;
		FSI/CAH2	- for utensils in contact with food for up to 30 days at room temperature.
		FC/CAH1-2	· · · · · · · · · · · · · · · · · · ·
10 1	50.00		
10 d	50 °C	FSU/CA3	According to Regulation 10/2011, for utensils in contact with food for more than 30 days
		FSU/CAH3	but less than 6 months at room temperature, including hot-fill conditions and/or heating
		FSI/CA3	up to 70 °C \leq T \leq 100 °C for maximum t = 120/2^((T-70)/10) minutes, these test conditions apply.
		FSI/CAH2	
		FC/CAH2	
10 d	60 °C	FSU/CA3	According to Regulation 10/2011, for utensils in contact with food for more than 6 months
10 u	00 C	FSU/CAH3	at room temperature, including hot-fill conditions and/or heating up to 70 °C \leq T \leq 100 °C
		· ·	
		FSI/CA3	for maximum t = 120/2^((T- 70)/10) minutes, these test conditions apply.
		FSI/CAH2	
		FC/CAH2	
2 h	100 °C or Reflux	FPU/CAH6	Plastics: According to Regulation 10/2011, for utensils used for a maximum of 0.5 h at temperatur
		FPU/H1-2	above 100 °C, the following test conditions in aqueous simulants apply: 100 °C
			or at reflux temperature for a duration of four times the time selected according to the
			of a renax temperature for a adradient of four times the time selected according to the
			general test conditions, resulting in contact times of 2 h (=4x0.5h).
			general test conditions, resulting in contact times of 2 h (=4x0.5h). <u>Metals and Alloys:</u> According to the CoE guide conditions for use with boiling contents,
			general test conditions, resulting in contact times of 2 h (=4x0.5h). <u>Metals and Alloys:</u> According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant.
4	100 %	501/1/2	general test conditions, resulting in contact times of 2 h (=4x0.5h). <u>Metals and Alloys:</u> According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4.
4 h	100 °C or Reflux	FPU/H3	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at
4 h	100 °C or Reflux	FPU/H3	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply:
4 h	100 °C or Reflux	FPU/H3	general test conditions, resulting in contact times of 2 h (=4x0.5h). <u>Metals and Alloys:</u> According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. <u>Plastics:</u> According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the
			 general test conditions, resulting in contact times of 2 h (=4x0.5h). <u>Metals and Alloys:</u> According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. <u>Plastics:</u> According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h).
4 h 8 h	100 °C or Reflux 100 °C or Reflux	FPU/H3 FPU/H4	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at
			general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h).
			general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at
			general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h).
			general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the
8 h	100 °C or Reflux	FPU/H4	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h).
8 h	100 °C or Reflux	FPU/H4	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for
8 h 0.5 h	100 °C or Reflux 121 °C	FPU/H4 FPU/CAH6	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use).
8 h	100 °C or Reflux	FPU/H4	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for
8 h 0.5 h	100 °C or Reflux 121 °C	FPU/H4 FPU/CAH6	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C
8 h 0.5 h	100 °C or Reflux 121 °C	FPU/H4 FPU/CAH6	general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for
8 h 0.5 h	100 °C or Reflux 121 °C	FPU/H4 FPU/CAH6	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C	FPU/H4 FPU/CAH6 FPU/H1-2	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use).
8 h 0.5 h	100 °C or Reflux 121 °C	FPU/H4 FPU/CAH6	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures <!--</td-->
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C	FPU/H4 FPU/CAH6 FPU/H1-2	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures up to 2
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C	FPU/H4 FPU/CAH6 FPU/H1-2	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures <!--</td-->
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C	FPU/H4 FPU/CAH6 FPU/H1-2	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures up to 2
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C 200 °C	FPU/H4 FPU/CAH6 FPU/H1-2 FPU/H3	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 100 °C the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures up to 200 °C, the following test conditions apply: 1 h at 200 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use).
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C	FPU/H4 FPU/CAH6 FPU/H1-2	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures up to 200 °C, the following test conditions apply: 1 h at 200 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used for more than 1 h at temperatures up to 200 °C, the following test conditions apply: 1 h at 200 °C using food simulant D2
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C 200 °C	FPU/H4 FPU/CAH6 FPU/H1-2 FPU/H3	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures up to 200 °C, the following test conditions apply: 1 h at 200 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use).
8 h 0.5 h 0.5 h	100 °C or Reflux 121 °C 175 °C 200 °C	FPU/H4 FPU/CAH6 FPU/H1-2 FPU/H3	 general test conditions, resulting in contact times of 2 h (=4x0.5h). Metals and Alloys: According to the CoE guide conditions for use with boiling contents, articles should be tested for 2 h at the respective boiling temperature of the food simulant. This applies also to FPU/H3 and FPU/H4. Plastics: According to Regulation 10/2011, for utensils used for a maximum of 1 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 4 h (=4x1h). Plastics: According to Regulation 10/2011, for utensils used for a maximum of 2 hour at temperatures above 100 °C the following test conditions in aqueous simulants apply: 100 °C or at reflux temperature for a duration of four times the time selected according to the general test conditions, resulting in contact times of 8 h (=4x2h). Plastics: According to Regulation 10/2011, for utensils used for up to 0.5 h at temperatures up to 121 °C in a microwave the following test conditions apply: 0.5 h at 121 °C for food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils (other than bakeware) used for up to 0.5 h at temperatures up to 175 °C, the following test conditions apply: 0.5 h at 175 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used less than 1 h at temperatures up to 200 °C, the following test conditions apply: 1 h at 200 °C using food simulant D2 (suitable vegetable oil needs to be selected) and E (for specific use). Plastics: According to Regulation 10/2011, for utensils used for more than 1 h at temperatures up to 200 °C, the following test conditions apply: 1 h at 200 °C using food simulant D2

version June 2023

Implemented modifications vs previous edition							
Table 1: Kitchenware examples							
FPW/CA3	Kitchen roll added						
FPU/CAH1	Filter added						
FPU/H2	Filter removed						
FPU/H3	Muffin cup added						
FSI/CA3	Salt shaker added						
FC/CAH1	Pizza box added						
Table 2: Testing conditions for plastic kitchenware							
Column description	Food/Food simulant ; A §						
Table 3: Testing conditions for metal kitchenware							
Food/Food simulant	(cf. EN 16889:2016), year added						
Table 4: Testing conditions for silicone and rubber							
	Note modified: Additionally, for teats, FS = Artificial saliva (AS);						
FSU/CAH4	(Directive 93/11/EEC; EN 12868:2017)						
Table 5A: Migration test conditions for paper & board kitchenware							
Paper and Board	New table of testing conditions added						
Table 5B: "Extraction" test conditions for paper & board kitchenware							
Paper and Board	New table of testing conditions added						

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct centres. You can find the address of the centre nearest you online (<u>european-union.europa.eu/contact-eu/meet-us_en</u>).

On the phone or in writing

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696,
- via the following form: <u>european-union.europa.eu/contact-eu/write-us_en</u>.

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website (<u>european-union.europa.eu</u>).

EU publications

You can view or order EU publications at <u>op.europa.eu/en/publications</u>. Multiple copies of free publications can be obtained by contacting Europe Direct or your local documentation centre (<u>european-union.europa.eu/contact-eu/meet-us_en</u>).

EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex (<u>eur-lex.europa.eu</u>).

Open data from the EU

The portal <u>data.europa.eu</u> provides access to open datasets from the EU institutions, bodies and agencies. These can be downloaded and reused for free, for both commercial and non-commercial purposes. The portal also provides access to a wealth of datasets from European countries.

Science for policy

The Joint Research Centre (JRC) provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society



EU Science Hub joint-research-centre.ec.europa.eu

- () @EU_ScienceHub
- (f) EU Science Hub Joint Research Centre
- (in) EU Science, Research and Innovation
- EU Science Hub
- (@eu_science

