

# Integrated Gluten Management

## Reliable gluten testing along the whole food production chain

Art. No.	Product name	Approvals	Area of application
<b>ELISA microtiter plates – basic methods</b>			
R7001	RIDASCREEN® Gliadin	<ul style="list-style-type: none"> <li>Codex Alimentarius Method (Type I)</li> <li>AOAC-OMA 2012.01 "Final Action"</li> <li>AOAC-RI 120601</li> <li>AACCI 38-50.01</li> <li>ICC 182</li> </ul>	R5 sandwich ELISA for the quantitative determination of intact (non-hydrolyzed) gluten from gluten containing cereals (wheat, rye and barley) <b>in food</b> (AOAC-OMA applicability for food in general).
<b>New</b> RAE7071	RIDASCREEN®EASY Gluten		R5 sandwich ELISA for the quantitative determination of <b>intact</b> (non-hydrolyzed) gluten from wheat, rye and barley. Easy extraction with the extraction tablet, <b>faster</b> test procedure and more sensitive compared to R7001.
<b>Lateral flow test strips (LFD)</b>			
<b>New</b> RAL7073	RIDA®QUICK Gluten quant.		R5 sandwich LFD for the <b>quantitative</b> determination** of gluten from wheat, rye and barley on <b>surfaces, in CIP water and in foods</b> . Fast and easy extraction with the extraction tablet.
R7003 R7004 R7005	RIDA®QUICK Gliadin	AOAC-OMA 2015.16 „Final Action“ AACCI 38-60.01 AOAC-RI 101702	R5 sandwich LFD for the <b>qualitative</b> determination of gluten on <b>surfaces, in CIP water and in foods</b> .
<b>ELISA microtiter plates – specialty methods</b>			
R7021	RIDASCREEN® Gliadin competitive	AOAC-OMA 2015.05 „Final Action“ AACCI 38-55.01 ICC 183	R5 competitive ELISA for the quantitative determination of gluten in <b>fermented and hydrolyzed food</b> (e.g. beer, starch).
R7041	RIDASCREEN® Total Gluten	AOAC-OMA 2018.15 "First Action"	Sandwich ELISA based on R5 and three other antibodies detecting gluten proteins* for the quantitative determination of intact (non-hydrolyzed) gluten from gluten containing cereals (wheat, rye and barley) <b>in oat and oat products</b> .  The gluten content in low oat containing products (<50%) and oat-free samples can be determined by the application of the Additive TG (Art. No. RA0041) as stated in the application note.
R7051	RIDASCREEN®FAST Gliadin sensitive		R5 sandwich ELISA for the quantitative determination of intact (non-hydrolyzed) gluten from gluten containing cereals (wheat, rye and barley). <b>Most sensitive</b> test. Due to high sensitivity, the measuring range ends at 20 mg/kg gliadin.
<b>Real-time PCR – qualitative and/or quantitative DNA detection</b>			
S3606	SureFood® ALLERGEN Gluten		qPCR for the qualitative and/or quantitative detection of a <b>specific DNA sequence</b> of gluten-containing cereals – e.g. wheat, rye, barley, oats – in food.
S7004	SureFood® ALLERGEN Oat		qPCR for qualitative detection of <b>oat in food</b> .
S7006	SureFood® ALLERGEN 4plex Cereals		qPCR for qualitative detection and <b>differentiation</b> of wheat, barley and rye in food.

\* The gluten content as a whole is determined through the joint detection of all gluten proteins by four different antibodies (R5, anti-HMW, anti-LMW). The percentage of R5 signal in the overall result is reduced. The use of other antibodies compensates for this. Through the detection of total gluten for the ELISA signal, a comparable level is reached for all three types of grain. Consequently, no conversion factor is used/needed here.

\*\* Evaluation with the RIDA®SMART APP Allergen.

# Overview of the gluten test kits

## Specifications

	RIDASCREEN® Gliadin (Art. No. R7001)	RIDASCREEN®FAST Gliadin sensitive (Art. No. R7051)	RIDASCREEN®EASY Gluten (Art. No. RAE7071)	RIDA®QUICK Gluten quant. (Art. No. RAL7073)	RIDA®QUICK Gliadin (Art. No. R7003/4/5)	RIDASCREEN® Gliadin competitive (Art. No. R7021)	RIDASCREEN® Total Gluten (Art. No. R7041)	qPCR kits (Art. No. S3606, S7004, S7006)
<b>Antibody</b>	R5 (no cross reactivity to soy, maize, rice, millet, teff, buckwheat, quinoa, amaranth)						R5 + three further antibodies against other gluten proteins	Specific DNA sequence
<b>Limit of detection (LoD; indicated in gluten)</b>	1 mg/kg	0.4 mg/kg	0.8 mg/kg	<ul style="list-style-type: none"> <li>Surfaces: 0.038 µg/mL</li> <li>CIP water: 0.072 µg/mL</li> <li>Food samples: 0.510 mg/kg</li> </ul>	<ul style="list-style-type: none"> <li>Surfaces: 1.6 - 3 µg/100 cm²</li> <li>CIP water: 10 ng/mL</li> <li>Raw material: 4.4 mg/kg</li> <li>Processed food: 6.3 mg/kg</li> </ul>	4.6 mg/kg	4 mg/kg*	<ul style="list-style-type: none"> <li>0.4 mg/kg using SureFood®PREP Advanced, protocol 1 (Art. No. S3606)</li> <li>1 mg/kg (No. S7004 and No. S7006)</li> </ul>
<b>Limit of quantification (LoQ; indicated in gluten)</b>	5 mg/kg	2.5 mg/kg	3 mg/kg	<ul style="list-style-type: none"> <li>Surfaces: 0.2 µg/ml</li> <li>CIP water: 0.25 µg/ml</li> <li>Food samples: 3 mg/kg</li> </ul>	keine (qualitativer Test)	10 mg/kg	5 mg/kg	<ul style="list-style-type: none"> <li>1 mg/kg using SureFood®PREP Advanced, protocol 1 (Art. No. S3606)</li> <li>only qualitative (Art. No. S7004 and Art. No. S7006)</li> </ul>
<b>Calibrator</b>	PWG-Gliadin			MoniQA wheat flour	none	Hydrolysate (mixture of wheat, rye, barley)	Gluten extract from four wheat varieties	Optional: SureFood® QUAN-TARD Allergen 40
<b>Standards (indicated in gluten)</b>	0, 5, 10, 20, 40, 80 ng/mL	0, 2.5, 5, 10, 20 ng/mL	0, 3, 6, 12, 24, 48 mg/kg	Measuring range: <ul style="list-style-type: none"> <li>Surfaces: 0.2 - 4 µg/mL</li> <li>CIP water: 0.2 - 4 µg/mL</li> <li>Food samples: 2 - 40 mg/kg</li> </ul>	none (qualitative test)	0, 10, 30, 90, 270 ng/mL	0, 5, 10, 20, 40, 80 mg/kg	none
<b>Extractor + extraction time</b>	<ul style="list-style-type: none"> <li>Cocktail (patented) (2h)</li> <li>Cocktail ECO (not part of the Codex reference method) (25 min)</li> </ul>		<ul style="list-style-type: none"> <li>Extraction tablet (15 min)</li> </ul>	<ul style="list-style-type: none"> <li>Extraction tablet (5 min)</li> </ul>	<ul style="list-style-type: none"> <li>Ethanol (15 min); for raw material</li> <li>Cocktail (patented) (2 h); for processed food</li> <li>Cocktail ECO (35 min); for processed food</li> </ul>	<ul style="list-style-type: none"> <li>Ethanol (30 min)</li> </ul>	<ul style="list-style-type: none"> <li>Cocktail (patented) (2h)</li> </ul>	<ul style="list-style-type: none"> <li>SureFood® PREP Advanced</li> <li>SureFast® Mag PREP Food</li> </ul>
<b>Test implementation (incubation time)</b>	1.5 h	30 min		10 min	5 min	40 min	50 min	PCR run approx. 80 min (automated with cycler)
<b>Benefits</b>	<ul style="list-style-type: none"> <li>Quantifies gliadin from wheat correctly (food is mostly contaminated with wheat)</li> <li>Approved for "in foods"***</li> <li>Special focus on validation of incurred (processed) foods as requested by AOAC</li> </ul>	<ul style="list-style-type: none"> <li>Most sensitive method</li> </ul>	<ul style="list-style-type: none"> <li>Validated with prolamins from wheat, rye and barley</li> <li>Validated with incurred (processed) samples according to the newest AOAC guideline</li> </ul>	<ul style="list-style-type: none"> <li>Simple evaluation with the RIDA®SMART APP Allergen</li> <li>Validated with prolamins from wheat, rye and barley</li> <li>Validated with incurred (processed) samples according to the newest AOAC guideline</li> <li>Only quantitative LFD using the R5 antibody</li> </ul>	<ul style="list-style-type: none"> <li>No external swab necessary, the test strip can directly be used for swabbing</li> <li>No high-dose-hook-effect observed</li> <li>Only qualitative LFD using the R5 antibody</li> <li>Simple documentation with the RIDA®SMART APP Allergen</li> </ul>	<ul style="list-style-type: none"> <li>Quantifies gliadin peptides from wheat correctly</li> </ul>	<ul style="list-style-type: none"> <li>Quantifies gluten from wheat, rye and barley correctly</li> <li>Application note for non-oat samples or samples with unknown oat-content available</li> </ul>	<ul style="list-style-type: none"> <li>Identical sample preparation and test procedure</li> <li>Any food can be analyzed</li> <li>Cereal species identification possible</li> <li>Automated extraction possible</li> </ul>

\*The gluten content as a whole is determined through the joint detection of all gluten proteins by four different antibodies (R5, anti-HMW, anti-LMW) The percentage of R5 signal in the overall result is reduced. The use of other antibodies compensates for this. Through the detection of total gluten for the ELISA signal, a comparable level is reached for all three types of grain. Consequently, no conversion factor is used/needed here.

\*\* AOAC-OMA Final Action in foods (2012.01) (19 different matrices representing various kind of food types were included).