

## Species-Check™ ELISAs

Semi-Quantitative detection of MEAT SPECIES content in raw foods and surface swabs



For the first time, Bio-Check's new Species-Check™ ELISAs allow semi-quantitative raw species analysis using immunoassay technology; enabling the differentiation of cross-contamination (0.1 – 0.5%) from adulteration (1.0 – 5.0%). Up to now, this was only possible by certain PCR-based techniques. This new development also improves the determination of species content in raw comminuted meats which are of greater risk from such issues, and where analysis has previously been difficult due to the potentially high fat content of these food types e.g. salami, sausages, chorizo. The enhanced sensitivity of Species-Check™ ELISAs, compared to current PCR-based methods, will make the screening of such samples more reliable and quicker. Both the 48 and 96 well kits, target species-specific albumin proteins, that detect very low levels of specific meat species in accordance with industry standards.

The assay validation included: a cross-reactivity panel, a robustness study, external reference materials and proficiency samples; these are all important considerations that provide a high degree of confidence for QC release at industry agreed Action Limits. To improve ease of use: Enhanced Extraction Solution is supplied pre-aliquoted in a separate Extraction kit; controls, conjugate and substrate are ready for use; controls and conjugate include coloured dyes; and the species-specific strips of microwells are colour coded.

### PRODUCT INFORMATION:

48 well	<b>Species-Check™ ELISAs</b> - Cow (R6104), Horse (R6106), Pig (R6083), Poultry (R6108), Sheep (R6110)
96 well	<b>Species-Check™ ELISAs</b> - Cow (R6105), Horse (R6107), Pig (R6084), Poultry (R6109), Sheep (R6111)
A6054	<b>Enhanced Extraction Kit</b> 24 aliquots; for sample extraction
A6008	<b>Surface-Check™ Swabbing kit (100)</b>

## SPECIATION

### Assay performance:

- **Limit of detection:**  
Food: 0.02 % w/w  
Swab: 0.002% w/w
- **Quantitation range:**  
Food: 0.1 – 0.5% w/w  
or 1.0 – 5.0% w/w  
Swab: 0.01 – 0.05% w/w
- **Total assay time:**  
80 minutes (including extraction, 9 samples)

### Key Benefits:

- **Comminuted meats** for improved screening of material at higher risk of adulteration
- **Semi-quantitative**
- **High sensitivity** compared to PCR methods
- **Quick to perform** due to aliquoted reagents, ready-to-use reagents, break-apart strips, 20+20+20 minute incubations
- **Reliable results** due to Validation with external reference materials, a cross-reactivity panel and a robustness study.

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### SPECIATION

#### ELISA KIT CONTENTS:

NEGATIVE, LOW & HIGH Kit Controls, Diluent concentrate, microwell plate (break-apart strips), Wash Solution concentrate, HRP conjugate, TMB substrate, Acid Stop and document set.

#### PROCEDURE:

Both the 48 and 96 well Species-Check™ ELISAs use dual-point calibrations to semi-quantify the meat species content of samples between 0.1 – 0.5% w/w (undiluted extracts) and 1.0 – 5.0% w/w (diluted extracts). The procedure for both kits is the same (see below) and they require the use of the Enhanced Extraction kit (REF: A6054) for food sample extraction and the Surface-Check™ Swabbing kit (REF: A6008) for surface swab collection. The Extraction kit is pre-aliquoted for ease of use and extracts can be analysed diluted or undiluted depending on the assay range required. Swab extracts are analysed undiluted to estimate levels between 0.01 and 0.05 %w/v.

#### Laboratory Samples (unprocessed foods/ingredients only) Preparation

↓	<b>PREPARE:</b> a Test Portion by grinding/chopping/blending until homogeneous	↓
↓	<b>ADD:</b> ~0.35g of Test Portion to 3.5mL of Enhanced Extraction Solution	↓
↓	<b>SHAKE &amp; EXTRACT:</b> 1 + 5 + 1 minutes to extract the sample	↓
↓	<b>SETTLE</b> for 5-10 minutes / <b>FRIT.</b> Or: <b>CENTRIFUGE</b> for 10 minutes	↓
↓	<b>TEST:</b> the extract above the frit/food pellet (or <b>DILUTE</b> and test – see 9.2.7. below)	↓

#### ELISA Protocol

↓	<b>PIPETTE:</b> 100µL Kit Controls, Test Portion extracts/dilutions, swab samples into wells	↓
↓	<b>MIX &amp; INCUBATE:</b> at room temperature* for 20 minutes	↓
↓	<b>WASH WELLS:</b> three times with wash solution 1X	↓
↓	<b>PIPETTE:</b> 100µL Anti-Species HRP into wells	↓
↓	<b>MIX &amp; INCUBATE:</b> at room temperature* for 20 minutes	↓
↓	<b>WASH WELLS:</b> five times with wash solution 1X	↓
↓	<b>PIPETTE:</b> 100µL TMB Substrate reagent into wells	↓
↓	<b>MIX &amp; INCUBATE:</b> at room temperature* for 20 minutes (in the DARK)	↓
↓	<b>PIPETTE:</b> 100µL Acid Stop Solution 1 into wells	↓
↓	<b>MIX &amp; READ:</b> wells at 450nm wavelength	↓
↓	<b>CALCULATE:</b> % meat results for all Samples	↓

Total time (9 samples): approximately 80 minutes. \*Room temperature 18-24°C/64-75°F

The kits are applicable for the testing of unprocessed meat products of a lean / semi-lean nature, including those that have been cured, smoked and fermented. The ELISAs share many generic features popular with our Allergen-Check™ ELISAs; including the potential for automation. Overall, the procedure has been optimised for enhanced sensitivity and semi-quantitative performance.

**Evaluate the kits for yourself and discover the benefits offered by the new Species-Check™ products. Contact Bio-Check (UK) or our local distributor.**

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Test portion:	0.35g
Sample prep:	grind
Extraction:	15 min.
ELISA:	20+20+20 min.
Total Test time:	80 min.

#### Equipment Items:

- Homogeniser/blender
- Weighing balance
- Vortex, rotary mixers
- Centrifuge
- Pipettes
- ELISA Plate reader

#### Customer Support:

Contact us to request our Validation Report and to organise an evaluation

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