

## METHOD SUMMARY – QWI-FM0049

<b>Method Title</b>	Salmonella Confirmation Using MALDI-TOF Biotyper		
<b>Document number</b>	<b>QWI-FM0049</b>	<b>Date Issued</b>	<b>5<sup>th</sup> July 2017</b>

<b>Method External References</b>	AS5013.10 (2009) Horizontal Method for the Detection of Salmonella Spp		
	Bruker instructions for use Bruker Bacterial Test standard		
	Bruker MBT Compass User Manual		
	Bruker standard operating procedure Direct Transfer (DT) procedure		
	Bruker standard operating procedure Trifluoroacetic acid (TFA) cleaning procedure		
<b>Matrix</b>	As listed on NATA Scope.		
<b>ALS Department</b>	<input type="checkbox"/> Pharmaceutical Chemistry <input type="checkbox"/> Water Microbiology <span style="float: right;"><input checked="" type="checkbox"/> Food Microbiology</span> <input type="checkbox"/> Pharmaceutical Microbiology <span style="float: right;"><input type="checkbox"/> Food Chemistry</span>		
<b>Accreditation Status</b>	<input checked="" type="checkbox"/> NATA <span style="margin-left: 50px;"><input type="checkbox"/> NON-NATA</span> <span style="margin-left: 50px;"><input type="checkbox"/> N/A</span>		
<b>Analysis technique</b>	<input type="checkbox"/> HPLC <span style="margin-left: 50px;"><input type="checkbox"/> GC</span> <span style="margin-left: 50px;"><input type="checkbox"/> Wet Chemistry</span> <input type="checkbox"/> Physical <span style="margin-left: 50px;"><input type="checkbox"/> Gravimetric</span> <span style="margin-left: 50px;"><input checked="" type="checkbox"/> Qualitative</span> <input type="checkbox"/> Pour Plate <span style="margin-left: 50px;"><input type="checkbox"/> Spread Plate</span> <span style="margin-left: 50px;"><input type="checkbox"/> MPN</span> <input type="checkbox"/> Filtration <span style="margin-left: 50px;"><input type="checkbox"/> Petrifilm</span> <span style="margin-left: 50px;"><input type="checkbox"/> EHS</span> <input type="checkbox"/> ELISA <span style="margin-left: 50px;"><input type="checkbox"/> VIDAS UP</span> <span style="margin-left: 50px;"><input type="checkbox"/> VIDAS</span> <span style="margin-left: 50px;"><input type="checkbox"/> TEMPO</span>		
<b>Method Principle</b>	<p>The method describes the procedure for confirmation of salmonella using MALDI-TOF Biotyper in food products and environmental samples (hygiene swabs).</p> <p>The Bruker MALDI Biotyper is a mass spectrometer based on MALDI-TOF (Matrix-Assisted Laser Desorption / Ionisation Time Of Flight) technology for rapid identification of organisms from microbial cultures.</p> <p>A portion of a colony from an agar plate is applied to a spot onto a target slide. A matrix solution is applied to the spot on the slide; the slide is then dried and loaded into the biotyper.</p> <p>Matrix-Assisted Laser Desorption - Ionization Time Of Flight (MALDI – TOF) is a soft ionisation technique used in mass spectrometry, allowing the analysis of biomolecules (biopolymers such as nucleic acids, peptides, proteins, and sugars) and large organic molecules (such as polymers, dendrimers and other macromolecules), which tend to be fragile and fragment when ionised by more conventional ionisation methods.</p> <p>These ions are electrostatically accelerated over a short distance and arrive in the flight tube at a mass-dependent speed. Because different proteins / peptides have different masses, ions arrive at the detector at different times (time of flight). The mass spectrometer measures the time (in the microsecond range) between pulsed</p>		

	acceleration and the corresponding detector signal, and the speed is converted into an exact molecular mass. The highly abundant microbial ribosomal proteins result in a mass spectrum with a characteristic mass and intensity distribution pattern. For many microorganisms, this pattern is species-specific and can be used as a 'molecular fingerprint' to identify the sample.
Reporting Unit	Detected or Not Detected in the amount of sample
LOR/LOQ	Not applicable

Minimum amount of sample required for analysis	As per Salmonella qualitative methods (minimum 25 g)	Turnaround time	As per Salmonella qualitative methods (minimum 2 days)
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<b>Author:</b>	Document Controller	<b>Date:</b>	5 <sup>th</sup> December 2017
<b>Authorised By:</b>	National Quality Manager	<b>Date:</b>	5 <sup>th</sup> December 2017

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