TECHNICAL PRODUCT INFORMATION

Reveal® 2.0 for *Salmonella*

PERFORMANCE TESTED
AOAC
RESEARCH INSTITUTE
LICENSE NUMBER 960801

Rapid and Robust Pathogen Detection

Reveal 2.0 for *Salmonella* is a simple yet sophisticated lateral flow technology that is easy to perform with minimal sample touch time. This robust lateral flow technology lends itself to multiple food matrices and is scalable to any operation—from low volumes to a theoretically unlimited throughput. Reveal 2.0 for *Salmonella* continues the tradition of convenient unitized-irradiated media which eliminates need for autoclaving. The simple assay procedure produces clear results in 15 minutes following enrichment.

Sample Enrichment Instructions

For most foods and environmental samples:

1. Transfer contents of 1 bottle of unitized REVIVE (9705) or 7.2 g of bulk REVIVE (9708) into a Stomacher-type bag. Using the graduated cup, add 200 mL of sterile-purified water pre-warmed to 42°C. Grasp the bag tightly 2–3 inches from the top and mix vigorously until dissolved.
2. Place 25 g of food sample (sample must be at room temperature) or environmental sponge sample into the Stomacher-type bag containing the REVIVE medium. Grasp bag tightly at top and knead sample until mixed. Shake bag vigorously using a side-to-side motion to ensure complete mixing. Alternative: Place bag in Stomacher apparatus and mix for 30 seconds at normal speed.
3. Loosely close the bag and place in suitable rack or support. Incubate 36 ± 1°C for 4 hours.
4. Reconstitute 2xRV in a Stomacher bag by adding 1 bottle of unitized 2xRV concentrated (9715) or 10.6 g of bulk RV (9716). Using the cup provided, add 200 mL of sterile-purified water prewarmed to 36 ± 1°C to the bag. Mix vigorously until dissolved. Hold prepared 2xRV at 42°C until use.
5. Remove the REVIVE sample bag from the 36 ± 1°C incubator and place in a suitable rack or support.
6. Add the 200 mL of selective 2xRV enrichment pre-warmed to 42°C to the entire REVIVE culture (200 mL) in the sample bag. Grasp tightly 2–3 inches from top and mix gently using a side-to-side motion.
7. Loosely close bag and place in a suitable rack or support. Incubate at 42 ± 1°C for 16–24 hours.

For select foods including raw ground beef, raw ground poultry, raw seafood, and poultry rinses:

1. Transfer contents of 1 bottle of unitized 1xRV (9729) or 5.3 g of bulk RV (9716) into a Stomacher-type bag. Using the graduated cup, add 200 mL of sterile-purified water pre-warmed to 42°C. Grasp the bag tightly 2–3 inches from the top and mix vigorously until dissolved.
2. Place 25 g of sample (sample must be at room temperature) into the Stomacher-type bag containing the 1xRV medium. Grasp bag tightly at top and knead sample until mixed. Shake bag vigorously using a side-to-side motion to ensure complete mixing. Alternative: Place bag in Stomacher apparatus and mix for 30 seconds at normal speed.
3. Loosely close the bag and place in suitable rack or support. Incubate 42 ± 1°C for 20–24 hours.

For deli meats and other ready-to-eat meat products:

1. Add 68.9 g of bulk RV (9716) into a large Stomacher-type bag. Add 2.6 L of sterile-purified water pre-warmed to 42°C. Grasp the bag tightly 2–3 inches from the top and mix vigorously until dissolved.
2. Place 325 g of sample (sample must be at room temperature) into the Stomacher-type bag containing the 1xRV medium. Grasp bag tightly at the top and knead sample until mixed. Shake bag vigorously using a side-to-side motion to ensure complete mixing. Alternative: Place bag in Stomacher apparatus and mix for 30 seconds at normal speed.
3. Loosely close the bag and place in a suitable rack or support. Incubate at 42 ± 1°C for 20–24 hours.

more ▶

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NEOGEN® CORPORATION

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foodsafety@neogen.com • www.neogen.com

Sample Enrichment Instructions, continued

For sprout irrigation water:

1. Add 375 mL sprout irrigation water to 375 mL double-strength RV broth [2xRV: 19.9 g bulk RV + 375 mL sterile-purified water pre-warmed to 42°C]. Mix and incubate at 42 ± 1°C for 20–24 hours.

For leafy greens:

1. Transfer contents of 1 bottle of unitized 1xRV (9729) of 5.3 g of bulk RV (9716) into a Stomacher-type bag. Using the graduated cup, add 200 mL of sterile-purified water pre-warmed to 42°C. Grasp the bag tightly 2–3 inches from the top and mix vigorously until dissolved.
2. Place 25 g of sample (sample must be at room temperature) into the Stomacher-type bag containing the 1xRV medium. Grasp bag tightly at top and knead sample until mixed. Shake bag vigorously using a side-to-side motion to ensure complete mixing. Alternative: Place bag in Stomacher apparatus and mix for 30 seconds at normal speed.
3. Loosely close the bag and place in suitable rack or support. Incubate at 42 ± 1°C for 20–24 hours.
4. Rehydrate 1 bottle of M-Broth (9722) by adding 10 mL of sterile-purified water pre-warmed to 36 ± 1°C. Cap tightly and shake to dissolve medium.
5. Remove 1 mL aliquot from the RV sample and transfer into the bottle of rehydrated M-Broth.
6. Incubate at 36 ± 1°C for 6 hours.

For peanut butter:

1. Homogenize 25 g sample in 225 mL lactose broth. Incubate at 36 ± 1°C for 22–24 hours.
2. Remove 0.1 mL aliquot of lactose broth culture and add 10 mL RV broth. Incubate at 42 ± 1°C for 22–24 hours.

For matrices that may contain residual antigen, highly viscous or highly pigmented material:

1. Transfer contents of 1 bottle of unitized REVIVE (9705) or 7.2 g of bulk REVIVE (9708) into a Stomacher-type bag. Using the graduated cup, add 200 mL of sterile-purified water pre-warmed to 42°C. Grasp the bag tightly 2–3 inches from the top and mix vigorously until dissolved.
2. Place 25 g of sample (sample must be at room temperature) into the Stomacher-type bag containing the REVIVE medium. Grasp bag tightly at top and knead sample until mixed. Shake bag vigorously using a side-to-side motion to ensure complete mixing. Alternative: Place bag in Stomacher apparatus and mix for 30 seconds at normal speed.
3. Loosely close the bag and place in suitable rack or support. Incubate at 36 ± 1°C for 4 hours.
4. Reconstitute 2xRV in a Stomacher bag by adding 1 bottle of unitized 2xRV concentrated (9715) or 10.6 g of bulk RV (9716). Using the cup provided, add 200 mL of sterile-purified water prewarmed to 36 ± 1°C to the bag. Mix vigorously until dissolved. Hold prepared 2xRV at 42°C until use.
5. Remove the REVIVE sample bag from the 36 ± 1°C incubator and place in a suitable rack or support.
6. Add the 200 mL of selective 2xRV enrichment pre-warmed to 42°C to the entire REVIVE culture (200 mL) in the sample bag. Grasp tightly 2–3 inches from top and mix gently using a side-to-side motion.
7. Loosely close bag and place in a suitable rack or support. Incubate at 42 ± 1°C for 16–24 hours.
8. Rehydrate 1 bottle of M-Broth (9722) by adding 10 mL of sterile-purified water pre-warmed to 36 ± 1°C. Cap tightly and shake to dissolve medium.
9. Remove 1 mL aliquot from the REVIVE/RV sample and transfer into the bottle of rehydrated MBroth.
10. Incubate at 36 ± 1°C for 6 hours.

Reveal Test Procedure

1. Remove enriched sample from designated incubator. Mix sample well and transfer 200 µL or 8 drops to the Reveal sample cup.
2. Remove the required number of Reveal for *Salmonella* test devices from container.
3. Place Reveal device with sample arrows facing down into sample cup containing sample and incubate at ambient temperature for 15 minutes.
4. Record Reveal results after 15 minutes.

Results of sample testing using Reveal 2.0 for *Salmonella*

Food / Sample Type	Inoculumn Strain	Enrichment Protocol	Inoculation Level		No. Samples	Number of Positive Samples		
						Reveal Method		
			cfu/g	cfu/ portion		Assay	Confirmed	Reference Method
Chicken carcass rinse	Naturally contaminated	Direct RV	NA	NA	20	6	6	5
Raw ground beef	*S. Newport*	Direct RV	0.043	1.1	20	11	11	14
			0.015	0.38	20	5	5	5
			0.00	0.00	5	0	0	0
			0.018	0.45	20	7	7	7
			0.00	0.00	5	0	0	0
Raw ground turkey	Naturally contaminated	Direct RV	0.43	11	20	20	20	20
			0.040	1.0	20	11	11	12
Hot dogs	*S. Oranienburg*	Direct RV	0.0039	1.3	20	8	8	13
			0.00	0.00	5	0	0	0
			0.0040	1.3	20	11	11	14
			0.00	0.00	5	0	0	0
Raw shrimp	*S. Weltevreden*	Direct RV	0.015	0.37	20	8	8	4
			0.00	0.00	5	0	0	0
Ready-to-eat meal product	*S. Typhimurium*	Revive/RV	0.019	0.47	20	10	10	8
			0.00	0.00	5	0	0	0
Dry pet food	*S. Schwarzengrund*	Revive/RV/M Broth	0.031	0.78	20	12	12	10
			0.00	0.00	5	0	0	0
Ice cream	*S. Enteritidis*	Revive/RV	0.11	2.7	20	15	15	19
			0.00	0.00	5	0	0	0
Spinach	*S. Montevideo*	RV/M Broth	0.019	0.47	20	11	11	8
			0.00	0.00	5	0	0	0
Cantaloupe	*S. Muenchen*	Revive/RV	0.023	0.58	20	8	8	7
			0.00	0.00	5	0	0	0
			0.0090	0.22	20	6	6	4
			0.00	0.00	5	0	0	0
Peanut butter	*S. Montevideo*	Lactose/RV	0.028		20	11	10	10
			0.00		5	0	0	0
Stainless steel surface	*S. Heidelberg*		110 (surface)		20	18	12	12
			0		5	0	0	0
			10		20	8	7	7
			0		5	0	0	0
Sprout irrigation water	*S. Saint-Paul*			0.56	20	20	20	9
				0.00	5	0	0	0

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ReveaL Q+

Mycotoxins Quantifiably Better

Rapid Quantitative Lateral Flow

Aflatoxin

DON

Fumonisin

Ochratoxin

T-2/HT-2

Zearalenone

NEOGEN®

Neogen Europe introduces Reveal® Q+ for mycotoxins, a range of simple tests to detect precise amounts of mycotoxins in grain and feed samples. Due to the known severe threat to human and animal health, more than 100 countries have established regulatory limits for mycotoxins in commodities intended as human food or animal feed. The Reveal Q+ product line adds to Neogen's unrivalled range of simple and accurate lateral flow, microwell and immunoaffinity column mycotoxin testing options.

Reveal Q+ tests are validated on an extensive, and expanding, list of matrices and have become an established testing solution. The tests provide proven, unparalleled accuracy and are backed by the strongest technical and R&D support in the industry. Reveal Q+ products are also suitable for room temperature incubation and storage, eliminating the need for incubators or refrigeration space.

Aflatoxin

Aflatoxin is considered by many to be the most potent, naturally-occurring carcinogen known. It has been linked to a variety of health problems in both humans and animals. Aflatoxin is a by-product of mould growth in a wide range of commodities. Two moulds that are major producers of aflatoxin are Aspergillus and A. parasiticus.

Reveal Q+ for Aflatoxin

- 6 minutes to results
- Simple ethanol extraction protocol
- Validated for corn and derivitives, wheat, nuts and rice

8085	Reveal Q+ for Aflatoxin	Quantitative range of 2 to 150 ppb	25 samples per kit
8086	Reveal Q+ for Aflatoxin Green	Quantitative range of 2 to 150 ppb	25 samples per kit

DON

Deoxynivalenol (DON), a member of the trichothecene family, is produced most commonly by the pink mould Fusarium graminearum living on cereal commodities such as wheat, corn and barley. The toxicological effects attributed to DON include: nausea, vomiting, feed refusal, gastroenteritis, diarrhoea, immunosuppression and blood disorders.

Reveal Q+ for DON

- 3 minutes to results
- Simple water extraction protocol
- Validated for corn and derivitives, wheat, oats, barley and rice

8385	Reveal Q+ for DON	Quantitative range for 300 to 6000 ppb	25 samples per kit

Fumonisin

Fumonisins are a family of mycotoxins produced by the moulds Fusarium verticillioides. These moulds commonly infect corn (in fact, they are considered ubiquitous in corn) and rice, hence the potential for fumonisins to be found in feed and foodstuffs is high. Fumonisins affect various animals differently and have been linked to oesophageal cancer in humans.

Reveal Q+ for Fumonisin

- 6 minutes to results
- Simple ethanol extraction protocol
- Validated for corn and derivitives.

8885	Reveal Q+ for Fumonisin	Quantitative range for 300 to 6000 ppb	25 samples per kit

Ochratoxin

Ochratoxin, commonly produced by the moulds Aspergillus ochraceus and Penicillium viridicatum, can be found in corn, barley, green coffee and various dried fruits. Ochratoxin may be present in conjunction with aflatoxin, one of the most potent naturally-occurring carcinogens. In fact, ochratoxin is a suspected carcinogen.

Reveal Q+ for Ochratoxin

- 9 minutes to results
- Simple methanol extraction protocol
- Validated for corn, wheat, oats and barley

8685	Reveal Q+ for Ochratoxin	Quantitative range of 2 to 20 ppb	25 samples per kit

T-2/HT-2 Toxins

T-2/HT-2 toxins are trichothecene mycotoxins produced by several species of Fusarium moulds. As T-2 toxin is readily metabolised to HT-2 toxin, and the toxins have been shown to produce numerous adverse effects on many animals, these two mycotoxins are frequently evaluated together. T-2 toxin is the principal causal toxin in the human disease alimentary toxic aleukia.

Reveal Q+ for T-2/HT-2

- 6 minutes to results
- Simple water extraction protocol
- Validated for corn, wheat, oats, milo and barley

8285	Reveal Q+ for T-2/HT-2	Quantitative range of 50 to 600 ppb	25 samples per kit

Zearalenone

Zearalenone is primarily produced by the mould Fusarium graminearum, which also commonly produces deoxynivalenol. If zearalenone is detected, there is a high probability that other fusarial Mycotoxins may be present. Zearalenone is classified as an oestrogenic mycotoxin because it frequently causes oestrogenic responses in animals.

Reveal Q+ for Zearalenone

- 6 minutes to results
- Simple ethanol extraction protocol
- Validated for corn and wheat

8185	Reveal Q+ for Zearalenone	Quantitative range of 50 to 1200 ppb	25 samples per kit

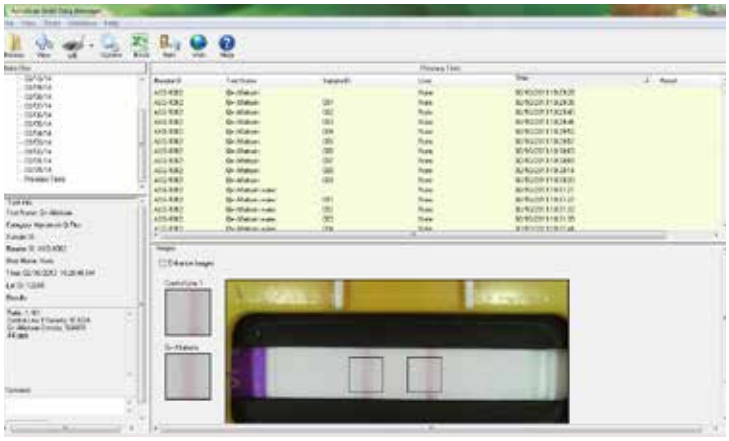
AccuScan® Gold Reader

Trusted Results from Your Trusted Partner

AccuScan® Gold removes subjectivity from reading Neogen's lateral flow devices, and provides consistent interpretation and the permanent records to back it up.

At a Glance

- Handheld compact and lightweight design
- HACCP / GMP compatible
- Provides an easy interpretation of results
- Test results can be exported to the AccuScan® Gold data manager software for powerful and permanent reporting and tracking trend analysis
- Provides traceability and date storage



Data Manager

*For a full range of validated matrices, please contact your Neogen representative for more information

Reveal® Q+ Procedure

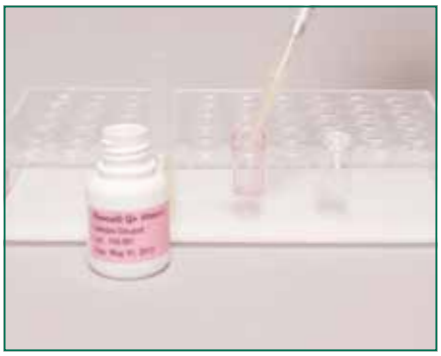
1. Prepare by entering the QR code into the AccuScan® Gold reader.

2. Obtain a representative sample. Grind and weigh out a 10 g sample.

3. Add extraction solution.

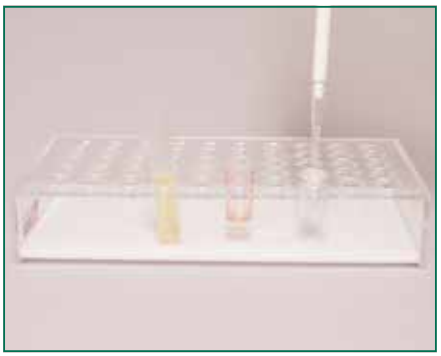
4. Shake vigorously for 3 minutes, or blend for 1 minute.

5. Settle, then filter.



6. Add sample diluent to red dilution cup.

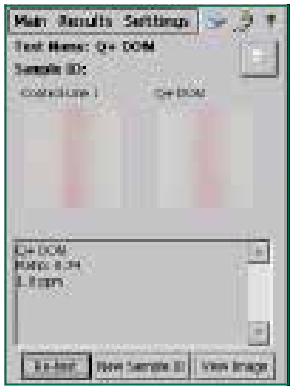
7. Add 100 µL sample extract to red dilution cup and mix up and down 5 times.



8. Transfer 100 µL to sample cup.

9. Place a new Reveal Q+ strip into the sample cup. Set a timer.

10. Remove promptly and interpret results using the AccuScan Gold reader.



Example Results: DON Q+

Please read kit instructions completely before performing test.

NEOGEN®

The Dairy School, Auchincruive, Ayr, KA6 5HU, Scotland, UK
Tel: +44 (0) 1292 525 627 • Fax: +44 (0) 1292 525 602
www.neogeneurope.com • E-mail: mycotoxins@neogeneurope.com

NEOGEN Europe Ltd

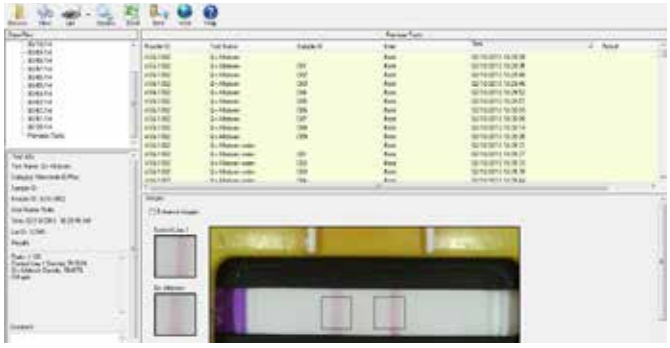
AccuScan® GOLD

Next generation reader for Neogen's lateral flow diagnostics

AccuScan® Gold removes subjectivity from reading Neogen's® lateral flow devices, and provides consistent interpretation and the permanent records to back it up.

AccuScan Gold offers:

- **Consistency.**
  AccuScan Gold's digital reading eliminates subjectivity from sample to sample, and technician to technician.
- **Portable.**
  It's lightweight handheld design allows for easy transportation between locations.
- **Permanence.**
  By recording the result, sample ID, time and date, AccuScan Gold eliminates manual recording, and provides easy reporting and permanent, traceable results.
- **Simple PC interface.**
  AccuScan Gold's test results can be exported to the AccuScan Gold Data Manager software for powerful and permanent reporting, and tracking and trend analysis.
- **Intuitive operation.**
  AccuScan Gold's easy to use touch screen minimises training needs. It's handheld compact and lightweight design allows for easy transportation between locations.
- **Dependability.**
  AccuScan Gold, creator, Neogen, has been proven leader in food safety innovation since 1982. We take pride in our unequaled technical service.



Data Manager

Neogen item 9595

AccuScan Gold Technical Specifications

CPU Speed	Samsung S3C2440/400 MHz
OS	WinCE 5.x
RAM/ROM	64 MB SDRAM/128 MB Flash
Memory	2.0 GB SD
Display type	TFT - Daylight readable with LED backlight
Display size/resolution	240 x 320
Digitizer/pens	Touch/1
Keyboard/keys	On-screen
Navigation	5-way pad
Housing	Plastic/rubber
Operating temperature	14 to 140°F
Sealing	IP67
Size (W x H x D)	3.7 x 8.5 x 1.6
Weight	16.9 oz
Power	7.2 V, 1,700 mAH Li-Ion
Interface	USB 1.1 client, serial, IrDA 1.1

For more information or to place an order please contact:

Neogen Europe Ltd. The Dairy School • Auchincruive, Ayr, KA6 5HU • Scotland • UK
Tel: +44(0)1292 525 627 • Fax: +44(0)1292 525 602 • www.neogeneurope.com • neogen_uk@neogeneurope.com