

**TSC SwabSURE E coli/Coliform Pathogen Swab Validation**  
**and Comparison to Microgen Path-Chek Coliform**

**Test Report**

Client Details:	Technical Service Consultants
Client Contact Name:	Steven Trenchard
Client Email:	steve.trenchard@tscswabs.co.uk
Name of Test Product:	SwabSURE <i>E. coli/Coliform</i>
Date of Report:	07/09/2022

**Sample Details**

Manufacturer/ Supplier:	Technical Service Consultants
Product Storage Condition:	Refrigerated
Batch Number:	TSC SwabSURE SS-L04 66058 Microgen Path-Chek PC010 64325
Melbec Reference number:	43141.1 (SwabSURE) 43141.2 (Path-Chek)
Expiry:	TSC SwabSURE 2023-06 Microgen Path-Chek 2023-05
Date Product Received:	23/08/2022
Date Test carried out:	24/08/2022
<b>Test conditions</b>	
Incubation temp:	36°C +/- 1°C
Incubation time:	18, 24, and 48hrs

## Test Results

**Test data: TSC SwabSURE (REF 43140.1)**
**Test data: Microgen Path-Chek vials (REF 43140.2)**

### TARGET/POSITIVE ORGANISMS – LOW CONCENTRATION

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>E. coli</i> NCTC 9001	8	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Yellow Hint	Turquoise	Yellow	Turquoise	Yellow
<i>E. coli</i> NCTC 12241	2	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Pos
Colour generated		Turquoise	No Change	Turquoise	No Change	Turquoise	Yellow
<i>E. coli</i> NCTC 12923	1	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Yellow	Turquoise	Yellow	Turquoise	Yellow
<i>E. coli</i> NCTC 10418	4	2/2 Pos	1/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Hint/ No change	Turquoise	Yellow	Turquoise	Yellow
Low-level <i>E. coli</i> NCTC 12923 Plus <i>Enterobacter aerogenes</i> (100-1000)	<i>Enterobacter</i> 44 <i>E. coli</i> 2	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Neg	2/2 Pos	1/2 Pos
Colour generated		Turquoise	No Change	Indigo	No Change	Indigo	Yellow/ No Change
Low-level <i>E. coli</i> NCTC 9001 Plus <i>Klebsiella pneumoniae</i> (100-1000)	<i>Klebsiella</i> TNTC <i>E. coli</i> 3	2/2 Pos	1/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Hint/ No change	Turquoise/ Indigo Hint	Yellow	Indigo	Yellow
<i>Enterobacter cloacae</i> NCTC 13380	9	2/2 Neg	1/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		No change	Yellow Hint/ No change	Pink	Yellow	Pink	Yellow
<i>Raoultella planticola</i> NCTC 9528	3	2/2 Neg	2/2 Neg	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		No Change	No change	Pink	Yellow	Pink	Yellow
<i>Klebsiella aerogenes</i> NCTC 10006	4	2/2 Neg	2/2 Neg	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		No change	No Change	Pale pink	Yellow Hint	Pink	Yellow

**SwabSURE Pos** = Colour change from Straw to Turquoise *E. coli*, Pink for Coliforms, to Indigo (Blue-Purple) for Mixed together

**Neg** = No colour change (remained Pale straw).

**Pathchek Pos** = Purple to Yellow

**Neg** = No colour change (remained Purple)

**Hint** = unclear/pending change observed

**NON-TARGET/NEGATIVE ORGANISMS – LOW CONCENTRATION**

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>Staphylococcus epidermidis</i> NCTC 13360	130	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	No change
<i>Enterococcus faecium</i> NCTC 7171	158	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	No change
<i>Bacillus cereus</i> NCTC 10320	192	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	No change
<i>Salmonella Enteritidis</i> NCTC 12964	570	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	No change
<i>Candida albicans</i> ATCC 10231	334	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	No change
<i>Pseudomonas aeruginosa</i> ATCC 15442	410	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	No change
<i>Acinetobacter baumannii</i> NCTC 12156	14	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No change	No change	No change	No change	No change	Hint

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**Neg** = No colour change (remained Pale straw).

**Pathchek Pos** = Purple to Yellow

**Neg** = No colour change (remained Purple)

**Hint** = unclear/pending change observed

### NON-TARGET/ FALSE POSITIVE ORGANISMS – LOW CONCENTRATION

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>Shigella sonnei</i> NCTC 12984	25	Neg	Neg	Neg	Neg	Pos	Pos
Colour generated		No change	No change	No change	No change	Turquoise	Yellow
<i>Citrobacter freundii</i> NCTC 9750	10	Neg	Neg	Neg	Neg	Neg	Pos
Colour generated		No Change	No Change	No Change	No Change	No change	Yellow

**SwabSURE Pos** = Colour change from Straw to Turquoise E coli, Pink for Coliforms, to Indigo (Blue-Purple) for Mixed together

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**Pathchek Pos** = Purple to Yellow

**Neg** = No colour change (remained Purple)

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### FALSE NEGATIVE ORGANISMS – LOW CONCENTRATION

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>Escherichia coli</i> O157 non-toxigenic NCTC 12900	4	Pos	Neg	Pos	Pos	Pos	Pos
Colour generated		Pale Pink	No change	Pink	Yellow	Pink	Yellow

**SwabSURE Pos** = Colour change from Straw to Turquoise E coli, Pink for Coliforms, to Indigo (Blue-Purple) for Mixed together

**Neg** = No colour change (remained Pale straw).

**Pathchek Pos** = Purple to Yellow

**Neg** = No colour change (remained Purple)

**Hint** = unclear/pending change observed

**TARGET/POSITIVE ORGANISMS – HIGH CONCENTRATION**

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>E. coli</i> NCTC 9001	49	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Yellow	Turquoise	Yellow	Turquoise	Yellow
<i>E. coli</i> NCTC 12241	53	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	No Change	Turquoise	Yellow	Turquoise	Yellow
<i>E. coli</i> NCTC 12923	28	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Yellow	Indigo	Yellow	Indigo	Yellow
Low-level <i>E. coli</i> NCTC 12923 Plus <i>Enterobacter aerogenes</i> (100-1000)	Enterbacter TNTC <i>E. coli</i> 26	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Yellow	Indigo	Yellow	Indigo	Yellow
Low-level <i>E. coli</i> NCTC 9001 Plus <i>Klebsiella pneumoniae</i> (100-1000)	Klebsiella TNTC <i>E. coli</i> 29	2/2 Pos	1/2 Neg	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Turquoise	Yellow/ No change	Indigo	Yellow	Indigo	Yellow
<i>Enterobacter cloacae</i> NCTC 13380	37	2/2 Neg	1/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Pink	Yellow Hint/ No change	Pink	Yellow	Pink	Yellow
<i>Raoultella planticola</i> NCTC 9528	19	2/2 Pos	1/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Pink	Yellow/ No change	Pink	Yellow	Pink	Yellow
<i>Klebsiella aerogenes</i> NCTC 10006	49	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Neg	2/2 Pos	2/2 Pos
Colour generated		Pale Pink	No change	Pale Pink	No change	Pink	Yellow

**SwabSURE Pos** = Colour change from Straw to Turquoise E coli, Pink for Coliforms, to Indigo (Blue-Purple) for Mixed together

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**Pathchek Pos** = Purple to Yellow

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**Hint** = unclear/pending change observed

**NON-TARGET/NEGATIVE ORGANISMS – HIGH CONCENTRATION**

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>Staphylococcus epidermidis</i> NCTC 13360	1281	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Enterococcus faecium</i> NCTC 7171	1670	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Bacillus cereus</i> NCTC 10320	1880	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Salmonella Enteritidis</i> NCTC 12964	5620	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Candida albicans</i> ATCC 10231	3412	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Pseudomonas aeruginosa</i> ATCC 15442	4322	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Shigella sonnei</i> NCTC 12984	>1000	1/1 Pos	1/1 Pos	1/1 Pos	1/1 Pos	1/1 Pos	1/1 Pos
Colour generated		Turquoise	Yellow	Turquoise	Yellow	Turquoise	Yellow
<i>Acinetobacter baumannii</i> NCTC 12156	>1000	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Neg
Colour generated		No Change	No Change	No Change	No Change	No Change	No Change
<i>Citrobacter freundii</i> NCTC 9750	>1000	1/1 Neg	1/1 Neg	1/1 Neg	1/1 Pos	1/1 Neg	1/1 Pos
Colour generated		No Change	No Change	No Change	Hint	No Change	Yellow

**SwabSURE Pos** = Colour change from Straw to Turquoise E coli, Pink for Coliforms, to Indigo (Blue-Purple) for Mixed together

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## FALSE NEGATIVE ORGANISMS – HIGH CONCENTRATION

		18HRS RESULT		24HRS RESULT		48HRS RESULT	
Organism	Inoculum (CFUs)	SwabSURE	PathChek	SwabSURE	PathChek	SwabSURE	PathChek
<i>Escherichia coli</i> O157 non-toxigenic NCTC 12900	437	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos	2/2 Pos
Colour generated		Pink	Yellow	Pink	Yellow	Pink	Yellow

**SwabSURE Pos** = Colour change from Straw to Turquoise E coli, Pink for Coliforms, to Indigo (Blue-Purple) for Mixed together

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## CONCLUSION

Both the Path-Chek and SwabSURE performed well, but the SwabSURE did identify target strains quicker than Path-Chek whilst suppressing non-target better. SwabSURE also allowed *E.coli* to be separately identified whilst mixed with Coliforms (common scenario) which is an advantage over Path-Chek which only gives a single colour whatever the organism is.

*Shigella* appears as *E.coli* creating a false positive in SwabSURE and Pathchek, but is still a significant organism and useful to highlight.