

**Report:** CVC.19J037.IB3

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## Test Report:

## EN 1276:2019

Chemical disinfectants and antiseptics – Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas – Test method and requirements (phase 2, step 1)

### Identification of the test laboratory:

Abbott Analytical Ltd  
Unit 2, Hickmans Road, Birkenhead, CH41 1JH, United Kingdom

### Identification of the client:

Coventry Chemicals Ltd  
Woodhams Road, Coventry, CV3 4FX, United Kingdom

### Identification of the sample:

19J/037

Name of the product: Sanitiser Concentrate

Batch number/reference and expiry date (if available): AQBK1 P32

Date of delivery: 06 September 2019

Storage conditions: Room temperature in darkness

Product diluent recommended by the manufacturer for use: Not disclosed

Active substance(s) and their concentrations (s) (optional): Not disclosed

Appearance of the product: Dark green liquid

### Notes:

- 1) The test results in this report relate only to the sample(s) tested.
- 2) This test report may not be reproduced except in full, adapted, altered or used to create a derivative work, without written approval from Abbott Analytical Ltd.

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**Test method and its validation:**

**Method:** Dilution-neutralisation

**Neutraliser:** 30.0 g/l Polysorbate 80 + 5.0 g/l Lecithin + 1.0 g/l L-histidine + 1.0 g/l L-cysteine (Neutraliser A) or  
100.0 g/l Polysorbate 80 + 30.0 g/l Lecithin + 30.0 g/l Tryptone Soya Broth + 5.0 g/l Sodium thiosulphate + 1.0 g/l L-histidine (Neutraliser B)

**Neutraliser validation:** Validated in accordance with EN 1276:2019 (5.5.2)

**Experimental conditions:**

**Period of analysis:** 17 September 2019 to 23 September 2019

**Product test concentration(s):** 1:60 v/v (1 part product to 59 parts water)

**Diluent used for product test solution(s):** Hard water

**Contact time(s):** 30 s ± 5 s

**Test temperature(s):** 20°C ± 1°C

**Interfering substance:** 0.3 g/l bovine albumin (clean conditions)

**Temperature of incubation:** 36°C ± 1°C

**Identification of the bacterial strain(s) used:** *Pseudomonas aeruginosa* (NCIMB 10421)  
*Escherichia coli* (NCTC 10418)  
*Staphylococcus aureus* (NCTC 10788)  
*Enterococcus hirae* (NCIMB 8192)

**Deviations:** None

**Remarks:**

- 1) All test conditions are as requested by the client, irrespective of whether these are in accordance with EN 1276:2019 (5.4.2) or EN 1276:2019 (5.5.1.1).

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**Requirements:**

The product shall demonstrate at least a 5 decimal log (lg) reduction against every test organism.

**Conclusion:**

According to EN 1276:2019, Sanitiser Concentrate possesses bactericidal activity when tested at a concentration of 1:60 (1 part product to 59 parts water) with a contact time of 30 seconds at 20°C under clean conditions against all of the referenced strains of *Pseudomonas aeruginosa*, *Escherichia coli*, *Staphylococcus aureus* and *Enterococcus hirae*.

**Report prepared by:**

Signed:



Name:

Tony Watson

Position:

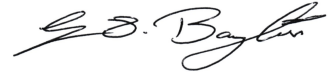
General Manager

Date:

27 September 2019

**Approved by:**

Signed:



Name:

Gareth Bayliss

Position:

Laboratory Manager

Date:

27 September 2019

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|                                 |                               |                                    |
|---------------------------------|-------------------------------|------------------------------------|
| Test organism:                  | <i>Pseudomonas aeruginosa</i> | (NCIMB 10421)                      |
| Date of test:                   | 17 September 2019             |                                    |
| Test temperature:               | 20°C ± 1°C                    | Incubation temperature: 36°C ± 1°C |
| Dilution-neutralisation method: | Pour plate                    | Number of plates: 1 / ml           |
| Neutraliser:                    | A                             | Test conditions: Clean conditions  |

**Validation and controls:**

| Validation suspension ( $N_{V_0}$ )                                 |    |             | Experimental conditions control (A)                                 |    |             | Neutraliser or filtration control (B)                               |     |             | Method validation (C)<br>Product conc.: 1:60                        |     |             |
|---------------------------------------------------------------------|----|-------------|---------------------------------------------------------------------|----|-------------|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|
| Vc1                                                                 | 93 | $\bar{x}$ = | Vc1                                                                 | 89 | $\bar{x}$ = | Vc1                                                                 | 101 | $\bar{x}$ = | Vc1                                                                 | 103 | $\bar{x}$ = |
| Vc2                                                                 | 94 | 93.5        | Vc2                                                                 | 92 | 90.5        | Vc2                                                                 | 94  | 97.5        | Vc2                                                                 | 97  | 100         |
| 30 ≤ $\bar{x}$ of $N_{V_0}$ ≤ 160 ?                                 |    |             | $\bar{x}$ of A ≥ 0.5 × $\bar{x}$ of $N_{V_0}$ ?                     |    |             | $\bar{x}$ of B ≥ 0.5 × $\bar{x}$ of $N_{V_0}$ ?                     |     |             | $\bar{x}$ of C ≥ 0.5 × $\bar{x}$ of $N_{V_0}$ ?                     |     |             |
| <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |    |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |    |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             |

**Test suspension ( $N$  and  $N_0$ ):**

| $N$              | Vc1  | Vc2  | $\bar{x}$ wm = 4.80 × 10 <sup>8</sup> ; | lg $N$ = 8.68                                                       |
|------------------|------|------|-----------------------------------------|---------------------------------------------------------------------|
| 10 <sup>-6</sup> | >330 | >330 | $N_0 = N / 10$ ;                        | lg $N_0$ = 7.68                                                     |
| 10 <sup>-7</sup> | 47   | 49   | 7.17 ≤ lg $N_0$ ≤ 7.70 ?                | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |

**Test:**

| Conc. of the product | Contact time | Vc1 | Vc2 | $Na$<br>( $\bar{x} \times 10$ ) | lg $Na$ | lg $R$<br>(lg $N_0$ - lg $Na$ ) |
|----------------------|--------------|-----|-----|---------------------------------|---------|---------------------------------|
| 1:60                 | 30 s         | 0   | 0   | <140                            | <2.15   | >5.53                           |

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|                                 |                         |                                    |
|---------------------------------|-------------------------|------------------------------------|
| Test organism:                  | <i>Escherichia coli</i> | (NCTC 10418)                       |
| Date of test:                   | 17 September 2019       |                                    |
| Test temperature:               | 20°C ± 1°C              | Incubation temperature: 36°C ± 1°C |
| Dilution-neutralisation method: | Pour plate              | Number of plates: 1 / ml           |
| Neutraliser:                    | A                       | Test conditions: Clean conditions  |

### Validation and controls:

| Validation suspension ( $N_{V_0}$ )                                 |     |             | Experimental conditions control (A)                                 |     |             | Neutraliser or filtration control (B)                               |     |             | Method validation (C)<br>Product conc.: 1:60                        |     |             |
|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|
| Vc1                                                                 | 107 | $\bar{x} =$ | Vc1                                                                 | 103 | $\bar{x} =$ | Vc1                                                                 | 97  | $\bar{x} =$ | Vc1                                                                 | 99  | $\bar{x} =$ |
| Vc2                                                                 | 103 | 105         | Vc2                                                                 | 99  | 101         | Vc2                                                                 | 101 | 99          | Vc2                                                                 | 104 | 101.5       |
| 30 ≤ $\bar{x}$ of $N_{V_0}$ ≤ 160 ?                                 |     |             | $\bar{x}$ of A ≥ 0.5 × $\bar{x}$ of $N_{V_0}$ ?                     |     |             | $\bar{x}$ of B ≥ 0.5 × $\bar{x}$ of $N_{V_0}$ ?                     |     |             | $\bar{x}$ of C ≥ 0.5 × $\bar{x}$ of $N_{V_0}$ ?                     |     |             |
| <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             |

### Test suspension ( $N$ and $N_0$ ):

| $N$              | Vc1 | Vc2 | $\bar{x}$ wm = 3.11 × 10 <sup>8</sup> ; | lg $N$ = 8.49                                                       |
|------------------|-----|-----|-----------------------------------------|---------------------------------------------------------------------|
| 10 <sup>-6</sup> | 307 | 313 | $N_0 = N / 10$ ;                        | lg $N_0$ = 7.49                                                     |
| 10 <sup>-7</sup> | 33  | 31  | 7.17 ≤ lg $N_0$ ≤ 7.70 ?                | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |

### Test:

| Conc. of the product | Contact time | Vc1 | Vc2 | $Na$<br>( $\bar{x} \times 10$ ) | lg $Na$ | lg $R$<br>(lg $N_0$ - lg $Na$ ) |
|----------------------|--------------|-----|-----|---------------------------------|---------|---------------------------------|
| 1:60                 | 30 s         | 0   | 0   | <140                            | <2.15   | >5.34                           |

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|                                 |                              |                                    |
|---------------------------------|------------------------------|------------------------------------|
| Test organism:                  | <i>Staphylococcus aureus</i> | (NCTC 10788)                       |
| Date of test:                   | 20 September 2019            |                                    |
| Test temperature:               | 20°C ± 1°C                   | Incubation temperature: 36°C ± 1°C |
| Dilution-neutralisation method: | Pour plate                   | Number of plates: 1 / ml           |
| Neutraliser:                    | B                            | Test conditions: Clean conditions  |

**Validation and controls:**

| Validation suspension ( $N_{v_0}$ )                                 |     |             | Experimental conditions control (A)                                 |     |             | Neutraliser or filtration control (B)                               |     |             | Method validation (C)<br>Product conc.: 1:60                        |     |             |
|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------|-----|-------------|
| Vc1                                                                 | 143 | $\bar{x} =$ | Vc1                                                                 | 150 | $\bar{x} =$ | Vc1                                                                 | 142 | $\bar{x} =$ | Vc1                                                                 | 143 | $\bar{x} =$ |
| Vc2                                                                 | 137 | 140         | Vc2                                                                 | 144 | 147         | Vc2                                                                 | 147 | 144.5       | Vc2                                                                 | 144 | 143.5       |
| 30 ≤ $\bar{x}$ of $N_{v_0}$ ≤ 160 ?                                 |     |             | $\bar{x}$ of A ≥ 0.5 × $\bar{x}$ of $N_{v_0}$ ?                     |     |             | $\bar{x}$ of B ≥ 0.5 × $\bar{x}$ of $N_{v_0}$ ?                     |     |             | $\bar{x}$ of C ≥ 0.5 × $\bar{x}$ of $N_{v_0}$ ?                     |     |             |
| <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |     |             |

**Test suspension ( $N$  and  $N_0$ ):**

| $N$              | Vc1  | Vc2  | $\bar{x}$ wm = 4.80 × 10 <sup>8</sup> ; | lg $N$ = 8.68                                                       |
|------------------|------|------|-----------------------------------------|---------------------------------------------------------------------|
| 10 <sup>-6</sup> | >330 | >330 | $N_0 = N / 10$ ;                        | lg $N_0$ = 7.68                                                     |
| 10 <sup>-7</sup> | 47   | 49   | 7.17 ≤ lg $N_0$ ≤ 7.70 ?                | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |

**Test:**

| Conc. of the product | Contact time | Vc1 | Vc2 | $Na$<br>( $\bar{x} \times 10$ ) | lg $Na$ | lg $R$<br>(lg $N_0$ - lg $Na$ ) |
|----------------------|--------------|-----|-----|---------------------------------|---------|---------------------------------|
| 1:60                 | 30 s         | 41  | 37  | 390                             | 2.59    | 5.09                            |

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|                                 |                           |                                    |
|---------------------------------|---------------------------|------------------------------------|
| Test organism:                  | <i>Enterococcus hirae</i> | (NCIMB 8192)                       |
| Date of test:                   | 17 September 2019         |                                    |
| Test temperature:               | 20°C ± 1°C                | Incubation temperature: 36°C ± 1°C |
| Dilution-neutralisation method: | Pour plate                | Number of plates: 1 / ml           |
| Neutraliser:                    | A                         | Test conditions: Clean conditions  |

### Validation and controls:

| Validation suspension ( $N_{v_0}$ )                                 |    |             | Experimental conditions control (A)                                 |    |             | Neutraliser or filtration control (B)                               |    |             | Method validation (C)<br>Product conc.: 1:60                        |    |             |
|---------------------------------------------------------------------|----|-------------|---------------------------------------------------------------------|----|-------------|---------------------------------------------------------------------|----|-------------|---------------------------------------------------------------------|----|-------------|
| Vc1                                                                 | 59 | $\bar{x} =$ | Vc1                                                                 | 59 | $\bar{x} =$ | Vc1                                                                 | 62 | $\bar{x} =$ | Vc1                                                                 | 61 | $\bar{x} =$ |
| Vc2                                                                 | 62 | 60.5        | Vc2                                                                 | 64 | 61.5        | Vc2                                                                 | 63 | 62.5        | Vc2                                                                 | 63 | 62          |
| 30 ≤ $\bar{x}$ of $N_{v_0}$ ≤ 160 ?                                 |    |             | $\bar{x}$ of A ≥ 0.5 × $\bar{x}$ of $N_{v_0}$ ?                     |    |             | $\bar{x}$ of B ≥ 0.5 × $\bar{x}$ of $N_{v_0}$ ?                     |    |             | $\bar{x}$ of C ≥ 0.5 × $\bar{x}$ of $N_{v_0}$ ?                     |    |             |
| <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |    |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |    |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |    |             | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |    |             |

### Test suspension ( $N$ and $N_0$ ):

| $N$              | Vc1 | Vc2 | $\bar{x}$ wm = 2.66 × 10 <sup>8</sup> ; | lg $N$ = 8.42                                                       |
|------------------|-----|-----|-----------------------------------------|---------------------------------------------------------------------|
| 10 <sup>-6</sup> | 278 | 256 | $N_0 = N / 10$ ;                        | lg $N_0$ = 7.42                                                     |
| 10 <sup>-7</sup> | 26  | 25  | 7.17 ≤ lg $N_0$ ≤ 7.70 ?                | <input checked="" type="checkbox"/> yes <input type="checkbox"/> no |

### Test:

| Conc. of the product | Contact time | Vc1 | Vc2 | $Na$<br>( $\bar{x} \times 10$ ) | lg $Na$ | lg $R$<br>(lg $N_0$ - lg $Na$ ) |
|----------------------|--------------|-----|-----|---------------------------------|---------|---------------------------------|
| 1:60                 | 30 s         | 0   | 0   | <140                            | <2.15   | >5.27                           |

**Explanations:**

|                |                                                                                                                     |
|----------------|---------------------------------------------------------------------------------------------------------------------|
| $V_c$          | count per ml (one plate or more)                                                                                    |
| $\bar{x}$      | average of $V_{c1}$ and $V_{c2}$ (1 + 2 duplicate)                                                                  |
| $\bar{x}_{wm}$ | weighted mean of $\bar{x}$                                                                                          |
| $N$            | number of cells per ml in the test suspension                                                                       |
| $N_0$          | number of cells in the test mixture at the beginning of the contact time ( $N_0 = N / 10$ )                         |
| $N_a$          | number of survivors per ml in the test mixture at the end of the contact time (before neutralisation or filtration) |
| $R$            | reduction ( $\lg R = \lg N_0 - \lg N_a$ )                                                                           |
| $N_v$          | number of cells per ml in the validation suspension                                                                 |
| $N_{v_0}$      | number of cells in the validation mixtures at the beginning of the contact time ( $N_{v_0} = N_v / 10$ )            |
| $A$            | number of survivors per ml in the experimental conditions control mixture                                           |
| $B$            | number of survivors per ml in the neutraliser or filtration control mixture                                         |
| $C$            | number of survivors per ml in the method validation mixture                                                         |

All test results have an associated uncertainty of measurement, details of which are available on request.