

## Formalex® “GREEN” Formalin Neutralizer – Technical Memo

### SOLUTION:

|  |                                      |   |                                      |                                       |                                       |
|--|--------------------------------------|---|--------------------------------------|---------------------------------------|---------------------------------------|
| Formalex® “GREEN” Formalin Neutralizer | <b>1 Gallon Cube</b><br>Part ABFX-01 | <b>2.5 Gallon Cube</b><br>Part ABFX-250 | <b>5 Gallon Cube</b><br>Part ABFX-05 | <b>30 Gallon Drum</b><br>Part ABFX-30 | <b>55 Gallon Drum</b><br>Part ABFX-55 |
|--|--------------------------------------|---|--------------------------------------|---------------------------------------|---------------------------------------|

### Additionally Needed:

|  |                 |
|--|-----------------|
| Aldehyde Waste Collection & Treatment Kit                | Part ABFRC-03K  |
| Replacement Aldehyde Test Kit (100 test packets per kit) | Part ABFRC-01K  |
| Replacement Aldehyde Waste Collection Container          | Part ABFRC-250E |
| Replacement Tissue Funnel with Screen                    | Part ABFX-FUN   |
| Formalex® “GREEN” Empty Spray Bottle                     | Part ABFX-32E   |

**For storage requirements and expiration date refer to individual product labels.**

### APPLICATION:

Newcomer Supply Formalex® “GREEN” Formalin Neutralizer is a multi-component, aqueous formulation which utilizes an organo-nitrogen based chemistry to effectively neutralize formalin waste products for sink disposal. 32 ounces of Formalex® “GREEN” will neutralize one gallon of 10% formalin or one gallon of 4% glutaraldehyde. Benefits include:

- No pH adjustment of solutions is required.
- Does not contain phosphates.
- Is non-vapor forming.
- Formalin or glutaraldehyde can be neutralized in 4 hours to non-hazardous disposable solutions.
- Neutralized aldehyde products can be safely discharged to sewer and waste water treatment systems.
- No sludgy residue.

Formalex® “GREEN” Aldehyde Waste and Collection Treatment Kit provides accessories to assist and complete the neutralization process. Replacement parts are available for some kit items.

- 2.5 Gallon Waste Collection Container
- 5.0 Liter Waste Collection Container
- 32 ounce Graduated Dispenser Container
- Aldehyde Screening Test Kit (provides 100 tests)
- Screened Waste Fluid Transfer Funnel
- Laminated Use Instructions & Waste Treatment Log Sheet

### NEUTRALIZING PROCEDURE:

1. Collect acceptable concentrations of aldehyde waste in designated and well labeled collection containers (ABFRC-03K or ABFRC-250E).
  - a. See Procedure Notes #1 and #2.
2. The use of a funnel with screen insert (ABFRC-03K or ABFX-FUN) is recommended to avoid any extraneous tissue debris from accumulating in aldehyde waste solutions.
3. Add 32 fluid ounces of Formalex® “GREEN” to each gallon (128 fluid ounces) of aldehyde waste. Or add 1 liter of Formalex® “GREEN” to 4 liters of aldehyde waste.
  - a. Refer to Page 2 for treatment calculation tables.
4. Securely tighten lid on the collection container; agitate container to thoroughly mix solutions.
  - a. Do not add any additional solutions to collection container once neutralization process has started.
5. Allow the mixed solution to stand for a minimum of 4 hours.
  - a. See Procedure Note #3.
6. Repeat Step #4 to decrease exposure to any potential headspace vapor prior to opening container.

7. Test treated solution with Aldehyde Screening Test Kit (ABFRC-03K or ABFRC-01K) until disposal of neutralized aldehydes is indicated or use Rapid Analysis pH testing.
  - a. See Procedure Note #4.
8. Pour neutralized non-hazardous aldehyde waste product into sanitary sewer.
9. Rinse collection container and clean with cold tap water before reusing.
10. Use Formalex® “GREEN” Spray Bottle (ABFX-32E) to neutralize small formalin spills and accompanying formalin odors.

### PROCEDURE NOTES:

1. 10% formalin (4% formaldehyde) and 4% glutaraldehyde are the highest concentrations that can be neutralized.
  - a. Formalex® “GREEN” should never be used to directly treat concentrated 37% formaldehyde for sanitary sewer disposal.
2. Maintain separate, well labeled collection containers for waste formalin and waste glutaraldehyde solutions for best neutralization results.
3. To attain the lowest formalin residual, allow treated solutions to stand overnight or approximately 8-12 hours.
4. Rapid Analysis pH testing to determine completion of neutralization reaction:
  - a. Take pH reading of mixed waste solution with pH indicator strip or pH meter.
  - b. Reaction is complete with a pH reading at or above 5.5.
5. Confirm disposal methods with local and state environmental regulations. Refer to SDS for personal protective measures and handling information.

### REFERENCES:

1. Bancroft, John D., and Marilyn Gamble. *Theory and Practice of Histological Techniques*. 6th ed. Oxford: Churchill Livingstone Elsevier, 2008. 22-23, 27.
2. Dapson, Janet Crookham, and Richard W. Dapson. *Hazardous Materials in the Histopathology Laboratory: Regulations, Risks, Handling and Disposal*. 4<sup>th</sup> ed. Battle Creek, MI: Anatech, 2005. 181-186.
3. Modifications developed by Newcomer Supply Laboratory.

## Calculating how much Formalex® “GREEN” that you need:

| ENGLISH MEASUREMENTS FOR TREATMENT     |        |  | METRIC MEASUREMENTS FOR TREATMENT      |        |  |
|--|--------|--|--|--------|--|
| Amount of Formalin Waste to Neutralize |        | Amount of Formalex Green Needed for Formalin Treatment | Amount of Formalin Waste to Neutralize |        | Amount of Formalex Green Needed for Formalin Treatment |
| Gallons                                | Ounces | (In OUNCES)  | Milliliters                            | Liters | (In MILLILITERS)                                       |
| 0.25                                   | 32     | 8  | 500                                    | 0.5    | 125  |
| 0.50                                   | 64     | 16   | 1,000                                  | 1.0    | 250  |
| 0.75                                   | 96     | 24   | 1,500                                  | 1.5    | 375  |
| 1.00                                   | 128    | 32   | 2,000                                  | 2.0    | 500  |
| 1.25                                   | 160    | 40   | 2,500                                  | 2.5    | 625  |
| 1.50                                   | 192    | 48   | 3,000                                  | 3.0    | 750  |
| 1.75                                   | 224    | 56   | 3,500                                  | 3.5    | 875  |
| 2.00                                   | 256    | 64   | 4,000                                  | 4.0    | 1000   |
| 2.25                                   | 288    | 72   | 4,500                                  | 4.5    | 1125   |
| 2.50                                   | 320    | 80   | 5,000                                  | 5.0    | 1250   |
| 2.75                                   | 352    | 88   | 5,500                                  | 5.5    | 1375   |
| 3.00                                   | 384    | 96   | 6,000                                  | 6.0    | 1500   |
| 3.25                                   | 416    | 104  | 6,500                                  | 6.5    | 1625   |
| 3.50                                   | 448    | 112  | 7,000                                  | 7.0    | 1750   |
| 3.75                                   | 480    | 120  | 7,500                                  | 7.5    | 1875   |
| 4.00                                   | 512    | 128  | 8,000                                  | 8.0    | 2000   |
| 4.25                                   | 544    | 136  | 8,500                                  | 8.5    | 2125   |
| 4.50                                   | 576    | 144  | 9,000                                  | 9.0    | 2250   |
| 4.75                                   | 608    | 152  | 9,500                                  | 9.5    | 2375   |
| 5.00                                   | 640    | 160  | 10,000                                 | 10.0   | 2500   |

|     |           | Number of OUNCES in a Cube of Formalex Green | Number of MILLILITERS in a Cube of Formalex Green |
|-----|-----------|--|---|
| 1   | Gal. Cube | 128  | 3,785   |
| 2.5 | Gal. Cube | 320  | 9,463   |
| 5   | Gal. Cube | 640  | 18,925  |
| 30  | Gal. Drum | 3840   | 113,550   |
| 55  | Gal. Drum | 7040   | 208,175   |