



CERTIFIED DRAIN DISPOSAL WITH  
**NEUTRALEX<sup>®</sup>**

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# Procedure Manual

Manufactured by

**scigen<sup>®</sup>**

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In addition to providing the necessary documents to support the use of NEUTRALEX®, this Procedure's Manual also offers information on other aldehyde control products that comprise the NEUTRALEX® franchise system. While NEUTRALEX® specifically is only one product in this system, the combined use of all products present a total solution for the safe management of aldehyde disposal and vapor control.

**Disclaimer: If any product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.**



Formaldehyde and glutaraldehyde disposal has become increasingly regulated by federal, state, and local agencies. However, the challenge being posed is for safe and effective remediation while keeping a watchful eye on cost containment. In response to this challenge, Scigen is pleased to offer a safe, effective, and economical solution for the drain disposal of most aldehyde solutions.

For over 25 years, **NEUTRALEX®** has been certified by the California Environmental Protection Agency for its proprietary down the drain disposal technology.

### The Seal That Says It All...



The California Environmental Protection Agency (Cal/EPA) and the U.S. Environmental Protection Agency (U.S. EPA) seek companies with innovative environmental technologies to participate in a national performance verification program with an emphasis on pollution prevention and waste treatment.

Since 1997, **NEUTRALEX®** has been deemed as a certified Hazardous Waste Environmental Technology by Cal/EPA (Certification No. 97-01-024). Additional certification information can be found on the Department of Toxic Substances Control (DTSC) website.



**NEUTRALEX®**

4047      23-730-561      Pre-Measured Pouches      16 units / case

**NEUTRALEX® Starter Kit**

4046      23-730-560      Complete Neutralex System      18 pieces / case

**NEUTRA-FORM®**

4304      23-730-569      Spill Control Granules      2 containers / case

**NEUTRA-PADS®**

4295      23-730-567      8" x10"      100 pads / case

4295-1      23-730-568      8" x10" Sample Pack      10 pads / case

4097      23-730-570      11" x 17"      15 pads / case

**NEUTRA-WIPES®**

4279      23-730-575      240 wipes / roll      4 rolls / case

4279K1      23-730-576      60 wipes / roll      1 rolls / case

**NEUTRALEX® Accessories**

4050      23-730-564      Aldehyde Test Kit      1 kit / case

4276      23-730-565      Reaction Chamber      1 / case

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## Neutralizing 10% NBF, VIP-Fixative®, and 2% or 4% Glutaraldehyde

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. For aldehyde neutralization, separate all identifiable tissue specimens from the liquid fixative and using an appropriate screen mesh (#80 mesh is recommended) collect the aldehydic waste in the Scigen Reaction container which can be purchased from Scigen under item 4276.
2. The reaction container should be placed in any receptacle providing secondary containment such as a plastic tub, closed sink, or counter top lined with Neutra-Wipes® or Neutra-Pads® which can be obtained from Scigen under item 4279 or 4297.
3. Determine the total volume of Neutralex® required for the neutralization of the aldehyde waste by using the following procedure; Use one pouch of Neutralex® for each gallon of 10% formalin or two gallons of 2%glutaraldehyde waste. Pour the complete contents of each pouch into the reaction container containing the waste. Shake, stir, or swirl the mixture for fifteen seconds.
4. Place the cap on the Reaction container and let it stand for 15 minutes. Swirl once again prior to testing
5. Using a pipette, extract 4 mL of treated waste from the vessel and transfer it to the plastic cuvette that is supplied in the Aldehyde Test Kit Scigen item # 4050. Fill to the 4mL line already printed on the cuvette. Test the pH by using the provided Neutralex® pH test strips following this procedure:
  - Immerse the reaction zones of the 4052 Neutralex® pH test strip into the test vessel for 20 seconds. Do not disturb the strip or the test vessel.
  - Remove the strip from the test vessel and compare the reaction zones with the color scale - pH of waste is 6 to 9
  - Record pH results in a Hazardous Waste Log.
6. After completing this, save the contents of the cuvette and test for residual aldehyde using the provided Neutralex® aldehyde test strips following this procedure:
  - Immerse the reaction zones of the 4051 Neutralex® aldehyde test strip into the test vessel for 20 seconds. Do not disturb the strip or the test vessel.
  - Remove the strip from the test vessel and immediately compare the reaction zone with
  - the color scale.
  - Record ppm aldehyde results in a Hazardous Waste Log.
7. For aldehydic waste solution containing zinc ions, a precipitate consisting of zinc hydroxide and other oxides will form. The concentration of these precipitates will be measured in ppms. Although these precipitates are generally considered hazardous for disposal, they may be removed by filtration. This can be accomplished by using glass wool or a coffee filter. The precipitate may be discarded or recycled.
8. Discard neutralized aldehydic waste to a sanitary sewer system in accordance with your local Publicly Owned Treatment Works (POTW) discharge requirements. It is important that you keep a log indicating the date of neutralization, the employee that performed the procedure, the volume of aldehydic waste treated, and the analytical results of the neutralization. A copy of this log can be found in Section 4 of this User's Guide.

## Neutralizing 37% Formaldehyde

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. For neutralization, remove all identifiable tissue must be separated from the fixative waste. Scigen recommends performing this using a proper screen (e.g., 80 mesh) waste is then collected in a calibrated reaction vessel. Volumetric calibration can be in gallon or liter divisions, preferably gallons.
2. Reduce the concentration of the 37% formaldehyde by diluting it as follows: 1 part formaldehyde to 10 parts water. The concentration of formaldehyde should now be in the 10% range, which is the normal concentration for any working formalin solution.
3. Follow neutralizing instructions outlined in the first part of this section for neutralizing 10% NBF. Follow all steps outlined here for proper treatment and disposal.

## Neutralizing Alcoholic Formalin

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. For neutralization, all identifiable tissue must be separated from the liquid hazardous waste. Scigen recommends performing this using a proper screen (e.g., 80 mesh) waste is then collected in a calibrated reaction vessel. Volumetric calibration can be in gallon or liter divisions, preferably gallons.
2. Calculate the volume of Neutralex® required to neutralize the aldehyde waste by using the following procedure; Determine the total volume in whole gallons or liters of 10% alcoholic formalin to be neutralized. Use one pouch of Neutralex® per gallon or liter of aldehydic waste. Pour the complete contents of each pouch into the calibrated reaction vessel.
3. Add an equal amount of water to the reaction vessel. For example, if one gallon of alcoholic formalin is to be treated add one gallon of water. Two gallons of waste, two gallons of water. Shake or stir the mixture for fifteen seconds.
4. Place the cap on the Reaction container and let it stand for 90 minutes.
5. Test the neutralized waste solution using the Aldehyde Test Kit Scigen item # 4050 and follow this procedure:
  - Immerse the reaction zones of the 4051 Neutralex® aldehyde test strip into the test vessel for 20 seconds. Do not disturb the strip or the test vessel.
  - Remove the strip from the test vessel and immediately compare the reaction zone with the color scale.
  - Record ppm aldehyde results in a Hazardous Waste Log.

## Neutralizing OPA Solution

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. All identifiable tissue must be separated from the liquid hazardous waste. This shall be performed using the proper screen (e.g., 80 mesh). The OPA waste is then collected in a calibrated reaction vessel. Volumetric calibration can be in gallon or liter divisions, preferably gallons.
2. Calculate the volume of Neutralex® required to neutralize the OPA waste by using the following procedure; Determine the total volume in whole gallons of OPA to be neutralized. Use one pouch of Neutralex® per two gallons of OPA. Pour the complete contents of each pouch into the calibrated reaction vessel.
3. Place the cap on the Reaction container and let it stand for 15 minutes.
4. Test the neutralized waste solution for pH & residual aldehyde part number 4050 as outlined in Section 1.1.

## Neutralizing Paraformaldehyde

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. All identifiable tissue must be separated from the liquid waste. This shall be performed using the appropriate screen mesh (e.g., 80 mesh). The liquid waste is then collected in a calibrated reaction vessel. Volumetric calibration can be in gallon or liter divisions, preferably gallons.
2. Calculate the volume of Neutralex® required to treat the paraformaldehyde waste as follows: Determine the total volume in whole gallons of the untreated paraformaldehyde waste. Use one pouch of Neutralex® per gallon of waste. Pour the complete contents of each pouch into the calibrated reaction vessel. Stir or cap and shake the mixture for 15 seconds.
3. Place the cap on the Reaction Container and let it stand for 15 minutes.
4. Test the neutralized waste solution for pH & residual aldehyde part number 4050 as outlined in Section 1.1.
5. If you notice a whitish flocculent present in the waste, decant the liquid waste to the sewer system. If no flocculent is present, pour entire waste to sewer system.
6. Add tap water to dissolve the flocculent waste, mix for 10 seconds, and pour this waste to the sewer system in accordance with your local POTW discharge requirement

## Neutralizing 37% Pen-Fix

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. All identifiable tissue must be separated from the fixative waste. Scigen recommends performing this using a proper screen (e.g., 80 mesh) waste is then collected in a calibrated reaction vessel. Volumetric calibration can be in gallon or liter divisions, preferably gallons.
2. Calculate the volume of Neutralex® required to neutralize the Pen-Fix waste by using the following procedure: determine the total volume in whole gallons of Pen-Fix to be neutralized. Use TWO pouches of Neutralex® per gallon of Pen-Fix waste. Pour the complete contents of each pouch into the reaction container.
3. Add an equal amount of water to the reaction vessel. For example, if one gallon of Pen-Fix is to be treated, add one gallon of water. Two gallons of waste, two gallons of water. Shake or stir the mixture for fifteen or twenty seconds until the Neutralex® is dissolved.
4. Place the cap on the Reaction container and let it stand for 90 minutes.
5. Test the neutralized waste solution for residual aldehyde part number 4050 as outlined in Section 1.1.

## Neutralizing Decalcifier

**DISCLAIMER:** Consult manufacturer's SDS for the safe handling of 10% formalin 2% glutaraldehyde or other fixatives. Use OSHA mandated protective equipment such as safety goggles, gloves, and an impervious apron. Neutralization procedure should be performed in an OSHA or AIHA approved ventilated room or under an adequate hood.

1. All identifiable tissue must be separated from the liquid hazardous waste. Scigen recommends performing this using a proper screen (e.g., 80 mesh) waste is then collected in a calibrated reaction vessel. Volumetric calibration can be in gallon or liter divisions, preferably gallons.
2. Add  $\frac{3}{4}$  of a gallon of Decalcifier waste to the reaction container.
3. Add  $1\frac{1}{3}$  gallons of 10% sodium hydroxide to the reaction container. Mix solution for 15 seconds and let stand 1 minute.
4. Add one pouch of Neutralex® to the reaction container. Pour the complete contents of the pouch into the calibrated reaction vessel and mix for 15 seconds.
5. Place the cap on the Reaction container and let it stand for 15 minutes.
6. Test the neutralized waste solution for residual aldehyde part number 4050 as outlined in Section 1.1.



# Aldehyde Test Kit Procedure

## Application and Illustrations



**NEUTRALEX®**, a CA-EPA certified green technology, is a pre-measured powder that provides complete aldehyde neutralization in 15 minutes and requires no pH adjustments. With **NEUTRALEX®** formalin disposal is convenient and effective – certifying drain-safe waste that is not harmful to the environment.

One pouch of **NEUTRALEX®** treats 1 gallon of formalin.



1

Add waste to the **NEUTRALEX®** Reaction Container.



2

Use 1 pouch of **NEUTRALEX®** per each gallon of formalin or 2 gallons of 2% glutaraldehyde waste. Pour the complete contents of each pouch into the reaction container.



3

Securely close the container and agitate the contents by shaking or swirling for 15 seconds. Let stand for 15 minutes.



4

Agitate the container and extract 4mL of treated waste and transfer to **NEUTRALEX®** Aldehyde Test Kit.



5

Immerse pH test strip into test vessel for 20 seconds. Do not agitate. Compare strip to scale.



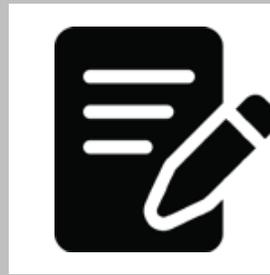
6

Immerse aldehyde test into test vessel for 20 seconds. Do not agitate. Compare strip to scale.



7

Record results in Hazardous Waste Log.



8

The waste is certified non-hazardous and safe for drain disposal.

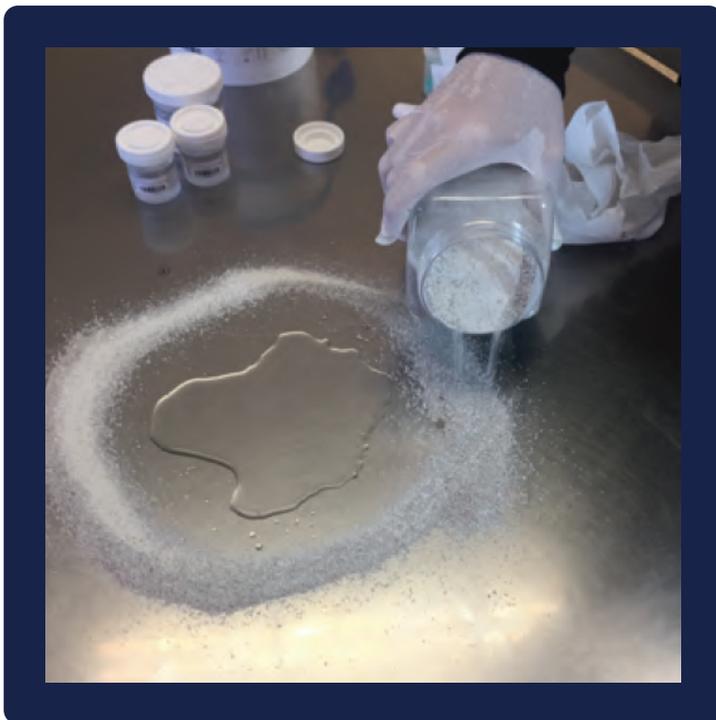


**scigen**<sup>®</sup>**NEUTRA-FORM<sup>®</sup> Procedure**  
Application and Illustrations

**NEUTRA-FORM<sup>®</sup>** is a granule that controls, absorbs, and neutralizes accidental formalin spills.

The treated granules provide maximum containment for spills – It neutralizes liquids while diminishing the harmful vapors.

One container of **NEUTRA-FORM<sup>®</sup>** is capable of treating up to a 1 gallon spill.



- 1** Dispense **NEUTRA-FORM<sup>®</sup>** to surround spill.
- 2** Sprinkle additional **NEUTRA-FORM<sup>®</sup>** to cover body of spill.
- 3** Wait 15 minutes for completion of aldehyde neutralization.
- 4** Once treated, the pH is in a neutral, safe range.
- 5** Dispose in the trash or other container.



# NEUTRA-WIPES® Procedure Application and Illustrations



**NEUTRA-WIPES®** were formulated to absorb and neutralize small formalin spills. The wipes rapidly neutralize small formalin spills and absorb roughly 30-50 ml of liquid.

After wiping up a formalin spill, simply dispose of the wipe in an appropriate disposal container and rest assured that the liquid has been properly neutralized.

**NEUTRA-WIPES®** are ideal as liners on storage carts, shelves, and in rooms where formalin is kept or transported — neutralizing any spillage and eliminating noxious vapors.



1

Dispense as many **NEUTRA-WIPES®** as necessary to absorb the spill. The formalin is neutralized once the vapors are eliminated.



2

When using as a shelf liner, completely cover the shelf in **NEUTRA-WIPES®**. Spills that are absorbed are neutralized.



3

Wrap **NEUTRA-WIPES®** around the specimen container to neutralize any leaks or spills.



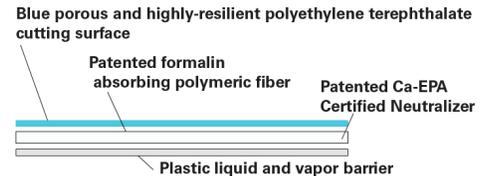
# NEUTRA-PADS® Procedure Application and Illustrations



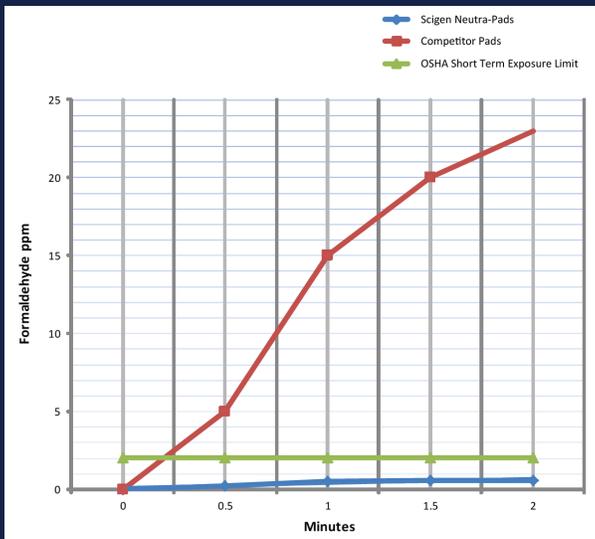
**NEUTRA-PADS®** were created to absorb and neutralize liquids from large and small specimens during the grossing process. They also are ideal for controlling formalin spills in storage areas and on transportation carts.

**NEUTRA-PADS®** employ a specially devised backing system that keeps formalin contained and neutralized within the pad itself. The result is a cleaner, drier, and safer environment.

Each 8"x10" pad can hold up to 80 ml of liquid.



- 1 Place **NEUTRA-PADS®** with fiber side up on any cutting surface.
- 2 Tissue can be placed on the **NEUTRA-PADS®** for dissection or examination. Formalin is simultaneously absorbed and neutralized resulting in lower vapor concentrations.
- 3 Consult your lab's guidelines for proper disposal procedures.



**OSHA formaldehyde Short Term Exposure Limit (STEL) standard is 2 ppm which is the maximum exposure allowed during a 15 minute period.**

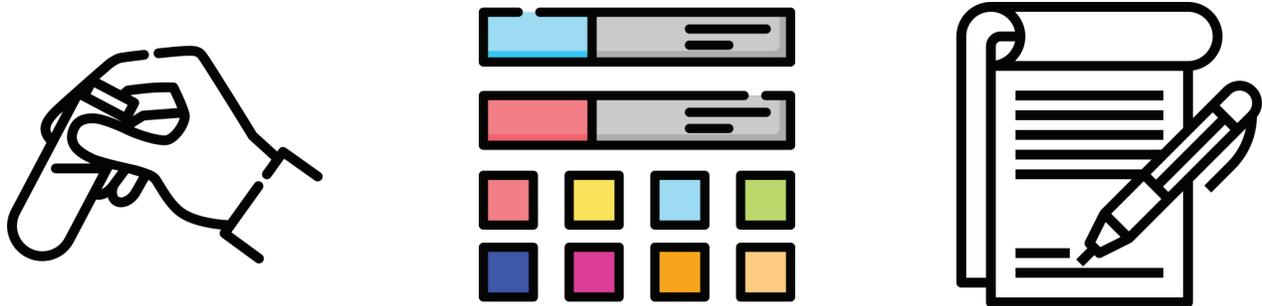
**When tested, NEUTRA-PADS® had a maximum exposure of 0.3 ppm while competitor pads produced exposures greater than 20 ppm – 10 times the allowable OSHA STEL.**

**The National Institute for Occupational Safety and Health considers 20 ppm of formaldehyde to be immediately dangerous to life and health.**

**Customers using NEUTRA-PADS® are below the 0.5 ppm workplace monitoring level and below the 0.75 ppm exposure daily limit set by OSHA.**



# Aldehyde Test Kit Procedure Application and Illustrations



## pH Testing Procedure

4052 - NEUTRALEX® pH Test

1. Fill test vessel with 4mL of treated waste.
2. Follow specific instructions for pH analysis. Immerse the pH strip into the test vessel for 20 seconds. Do not agitate.
3. After 20 seconds, remove and compare the reaction zones with the color scale. Record pH of the waste.

## Aldehyde Testing Procedure

4051 - NEUTRALEX® Aldehyde Test

1. Fill test vessel with 4mL of treated waste.
2. Follow specific instructions for aldehyde analysis. Immerse the aldehyde strip into the test vessel for 20 seconds. Do not agitate.
3. After 20 seconds, remove and compare the reaction zones with the color scale. Record pH of the waste.

## Typical Test Results and pH for POTW discharge

Specification:	Minimum:	Typical:	Maximum:
Typical POTW pH Discharge:	6.0	6.5 - 7.0	9.0
Residual Formaldehyde:	0 ppm	< 1 ppm	15 ppm

Disclaimer: The neutralization procedure is performed in a well ventilated room or under an adequate hood to reduced the employees' exposure to formaldehyde. There is no ventilation requirement for the handling of NEUTRALEX®.



# Neutralization Inspection Log

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspection Personnel: \_\_\_\_\_

Yes (Y) | No (N)

- \_\_\_\_\_ Have all tissue fragments been strained from spent formalin?
- \_\_\_\_\_ Have any other chemicals been mixed in with the spent formalin?
- \_\_\_\_\_ Is adequate protective gear such as a lab coat, gloves, and goggles being used?
- \_\_\_\_\_ Is neutralization being performed under a hood or in a well ventilated area?
- \_\_\_\_\_ Is the treatment container free from leaks, corrosion, and/or excessive wear?area?
- \_\_\_\_\_ Is the secondary containment secure and free from cracks and accumulated liquids?area?
- \_\_\_\_\_ Do liquid levels exceed 8/10 of the container capacity?
- \_\_\_\_\_ Are all containers properly labeled?
- \_\_\_\_\_ Is the Aldehyde Waste Treatment Log current?
- \_\_\_\_\_ Is the Neutralization Inspection Log current?
- \_\_\_\_\_ Onsite Treatment Authorized H&SC 25200.1.5

For additional information on the **NEUTRALEX®** franchise,  
please visit us at [www.scigenus.com](http://www.scigenus.com)  
or email us directly at [info@scigenus.com](mailto:info@scigenus.com).

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