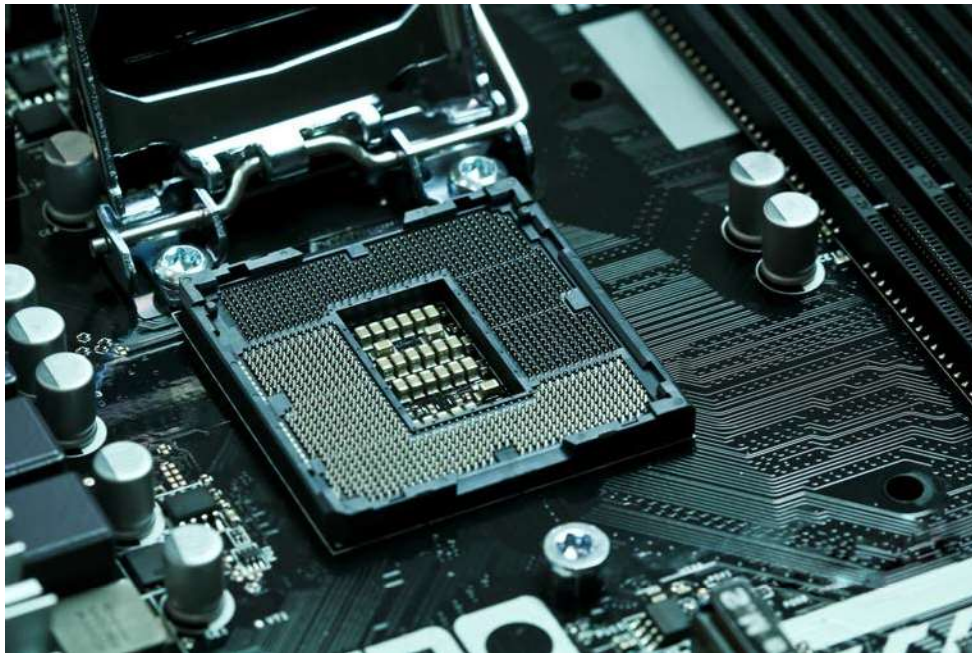


# AQUANOX® A4241

## PCB Cleaner

AQUANOX A4241 is an innovative aqueous cleaning solution designed to be effective on the toughest soils while protecting even the most sensitive parts from etch or darkening. A4241 is multi metal safe including bare aluminum and copper.



*The information contained herein is based on available data from reliable sources and is accurate to the best of KYZEN Corporation's knowledge at the time of this publication. KYZEN makes no warranty, expressed or implied, of merchantability or fitness for a particular purpose, course of performance or usage of trade. The user is solely responsible for determining the suitability and completeness of such information for their particular application and for adopting appropriate safety precautions. Physical properties listed within are typical values based on samples tested and should not be construed as guaranteed analysis of any specific lot or as specifications for the product. Other factors may involve additional safety or performance considerations- refer to the KYZEN product Safety Data Sheet (SDS) for complete safety information. This data is not to be taken as a warranty or representation for which KYZEN assumes legal or financial responsibility.*

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## **T A B L E O F C O N T E N T S**

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<b><i>Procedure(s)- Bath Maintenance and Monitoring</i></b>
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## PRODUCT DESCRIPTION

AQUANOX A4241 is a single chamber batch cleaning product is a highly. A4241 is engineered to remove lead-free no-clean flux residues and is effective on all solder pastes in production today. A4241 is commonly used to clean rosin and no-clean flux residue types but will also clean water soluble soils.

AQUANOX A4241 is effective at cleaning most lead-free and tin-lead no-clean, rosin-based, and water-soluble reflowed flux residues on production assemblies. The product is functional in spray-in-air, spray-under-immersion, and ultrasonic cleaning machines. The product is formulated as a concentrate with concentration levels being dependent on the soil type and level of impingement energy applied by the cleaning machine. In most applications, AQUANOX A4241 mixture works best in percent by volume ranges from 20-25% with wash times ranging from 10-25 minutes dependent on the solder paste flux used.

AQUANOX A4241 is engineered with a mixture of oxygenated and polar organic reactive solvents. Functional additives are added to protect metallic surfaces from chemical attack, surface tension reduction to improve wetting and penetration under low gap components, and reduce foam propagation. The product is low in odor and contains no hazardous materials. The product has a wide material compatibility window on boards, components, labels and metallic surfaces.

## CHEMICAL AND PHYSICAL PROPERTIES

This KYZEN product is environmentally responsible and operator safe, when handled in accordance with good industrial hygiene and safety practices. *Table 1* summarizes important chemical and physical properties of this product.

Parameter	100% Concentrate	5% Dilution	25% Dilution	Special Values
Clarity	Clear			
Color	Colorless to light straw			
Odor	Mild amine			
Flash Point, °C (TCC)	None to Boiling			
Boiling Point, °F/C	210°F / 99°C			
Volatile Organic Compound (VOC) gm/L EPA Method 24	609.3			
Vapor Pressure, VOC Components, mmHg at 20°C	7			
Chemical Oxygen Demand, (COD), mg/L (ppm)				124.6 <sup>1</sup>
pH	10.5 - 11.5	10.0 - 11.0		10.4 <sup>2</sup>
Specific Gravity	1.033 - 1.046			
Weight/gallon	8.6			
Refractive Index, ° BRIX	42 - 52	5.4	12.7	
MEQ to pH 8.3	1.50 - 2.50			
MEQ to pH 4.0	1.85 - 2.85			
Alkalinity Ratio	1: 1.2			
Non-volatile Residue (NVR) %	2.1			

<sup>1</sup> Value measured at 0.01% Dilution.

<sup>2</sup> Measured at 10 g/L dilution.

## PRODUCT USE DIRECTIONS

In general, wash concentration, wash temperature, spray impingement energy, wash time and rinsing are five key elements of process optimization. AQUANOX A4241 is designed to be used in spray-in-air batch cleaning machines. A4241 may also be used in spray-under-immersion and ultrasonic batch cleaning systems. Wash concentration, wash temperature, spray impingement energy and wash time are four key factors to successful cleaning.

KYZEN recommends the following process parameters for applications using AQUANOX A4241:

1. **Wash Concentration:** For lead-free no-clean and rosin based flux residues, a concentration range from 20-25% is recommended. For organic acid flux residues, a concentration range of 5-10% is recommended. If the residues are badly charred, a higher concentration level may be needed.
2. **Wash Temperature:** For most lead-free no-clean, rosin, and organic acid flux residues, a wash temperature range of 55-65°C / 131-149°F is sufficient. The defoaming properties of AQUANOX A4241 are best when operating at 55-65°C wash temperatures.
3. **Spray Impingement:** Spray energy is needed to move the cleaning agent under Z-axis components (low stand-off). Fluid dynamics improve cleaning and shorten cycle time. Spray pressures in the range of 50-100 psi using tight fan and coherent spray jets work well.
4. **Wash Time:** Determining the optimum wash time is a function of the residue properties, component density and geometry, Z-axis gap height and cleaning equipment. Wash time in the range of 10-25 minutes is adequate for most applications.

AQUANOX A4241 works best when the cleaning agent is added to the wash tank using a dosing injection system, such as the KYZEN Chemtroller. When the wash tank calls for water make-up, the dosing systems add A4241 at the desired concentration levels. KYZEN recommends that the wash concentration be monitored using refractive index.

*Appropriate bath maintenance methods specific to this product are detailed in latter sections of this supplement.*

## COMPATIBILITY INFORMATION- SUBSTRATES AND EQUIP MEN

All chemicals have the potential to adversely affect substrates and process equipment. As such, the effects of short-term exposure for substrates common to parts and assemblies and the effects of long-term exposure for materials of equipment construction must be considered. *Tables 2, 3 and 4* summarize known compatibility recommendations regarding the use of this product with specific substrates. These compatibility recommendations are based on internet research of A4727's major formulation materials and internal KYZEN testing on the product as a whole of commonly available materials. Elastomers and plastics can vary greatly in quality. Metals, elastomers and plastics can vary greatly in quality. For the most accurate results on long-term exposure of your materials, it is advised to perform additional testing.

**Table 2: Plastics and Elastomers**

Brand Name	Generic Description	A4241
Delrin™	Acetal	A
Acrylic	Acrylic	D
Nylon 6/6	Polyamide	A
Lexan™	Polycarbonate resin	D
ABS Plastic	Acrylonitrile butadiene styrene	D
PEEK	Polyetherether Ketone	E
PVC	Polyvinyl Co-polymer	B
Natural Rubber	Black rubber	C
NORYL®	PPO™ resin and polystyrene	E
Neoprene	Polychloroprene	A
PPS (Ryton®)	Polyphenylene sulfide	E
PTFE (Teflon™)	Polytetrafluoroethylene	A
Kalrez® 4079	ASTM D395B: FFKM (FFPM)	A
Kynar™	Polyvinyl fluoride	E
Aflas	Tetrafluoroethylene and Propylene	E
Tefzel™	Ethylene/tetrafluoroethylene copolymer	E
Polypropylene	Polypropylene	A
Hypalon®	Chlorosulfonated Polyethylene (CSPE)	E
Chemraz®	Perfluoroelastomer (FFKM)	E
Alathon™	High density polyethylene	A
Viton A or B	Fluoroelastomer	D
Low density polyethylene	Polyethylene	A
Ultem	Polyether imide	E
Silicone Rubber	Silicone Rubber	A
CPVC	Chlorinated Polyvinyl Chloride	C
Buna-S	Styrene Butadiene	D
Buna-N	Styrene Nitrile Copolymer	D
Kel-F® / Neoflon®	PolyChloroTriFluoEthylene (PCTFE)	E
EPDM	Ethylene Propylene Diene Monomers	A

# COMPATIBILITY INFORMATION- SUBSTRATES AND EQUIPMENT

**Table 3: Metals and Alloys**

Substrate	A4241
2024 Aluminum- Bare	A <sup>3</sup>
2024 Aluminum- Alclad	A <sup>3</sup>
2024 Aluminum- Anodized	A <sup>3</sup>
Black Anodized Aluminum	A <sup>3</sup>
3003, 6061 and 7075 Aluminum	A <sup>3</sup>
7075 Aluminum- Alclad	A <sup>3</sup>
Silver	A
Gold	A
Copper	A
Zinc	E
1018 Steel	A
304 and 316 Stainless Steel	A
Titanium	A
Steel, Galvanized	A
Tin-Lead Based Alloys	A <sup>3</sup>
Tin-Copper Based Alloys	A
Tin-Silver-Copper Based Alloys	A
Bismuth-Tin Based Alloys	A

**Ratings - Chemical Effect - 168 Hours**

A - Excellent  
 B - Good: Minor Effect, slight corrosion, or discoloration.  
 C - Fair: Moderate Effect, not recommended for continuous use. Softening or loss of strength, and swelling may occur.  
 D - Severe Effect: Not recommended for any use.  
 E - Test / Information not available.

**Explanation of Footnotes**

1-Satisfactory to 72°F (22°C)  
 2-Satisfactory to 120°F (48°C)  
 3-Repeated wash exposure beyond a typical process cycle time can lead to discoloration or etching of the surface.  
 KYZEN Booster 20 is recommended to dose sump side to minimize any reaction.

**Table 4: Equipment**

**When considering long-term exposure for materials of equipment construction, the following materials are generally compatible with chemistries used for inline and batch cleaning systems: (listed in order of resilience)**

Type	Compatibility
EXHAUST	Stainless Steel, Polypropylene, PVC
PUMP SEALS, O-RINGS, GASKETS	Preferred: Teflon, Kalrez® 4079, EPDM (EPR) Note: VITON is not recommended.
PLUMBING LINES	Stainless steel or Polypropylene (machine piping). PVC (drain piping) Note: CPVC is not recommended.
CURTAINS	Polypropylene or Reinforced Silicone (red)
WINDOW / DOOR SEALS	EPDM, Silicone Rubber
RTV	Dow Corning 732 or similar high grade

## BATH MAINTENANCE AND MONITORING

When a KYZEN bath solution is properly maintained, prolonged bath life can be expected. The results of a bath life study conducted with this product confirm the extended bath life experienced by many KYZEN users. Expanded process baths can be a significant and expensive waste stream for facilities. Numerous factors can degrade bath performance, including depletion or imbalance of bath chemistries and buildup of contaminants from drag-in or other sources. Process bath life can be extended through simple process control and contaminant reduction techniques, resulting in significant waste reductions and cost savings.

**KYZEN recommends REFRACTIVE INDEX to monitor bath concentration.**

**KYZEN recommends NON-VOLATILE RESIDUE (NVR) to monitor bath life.**

### NOTES AND COMMENTS

- Recommended procedures for bath life maintenance and monitoring are appended to this supplement.
- **SPER® Scientific** and **Atago® Pocket Pal-1** refractometers, including full procedures for using these refractometers, are available for purchase through your KYZEN Representative.
- Flux and solder pastes can contribute to Refractive Index readings. Many years of field experience have validated the effectiveness of refractive index to control most KYZEN products. The wide operating window provided by KYZEN technology tends to minimize the induced error that soils create over time. As soil load increases, refractive index charts should be adjusted to reflect the predictable soil levels in your cleaning process. KYZEN's **Bath Profile Kit** can help determine if an adjustment is needed by analyzing wash bath samples collected over the life of a SUMP charge. Please contact your KYZEN Representative for more information.
- KYZEN's Bath Profile Kit / PN# F00206 can help determine NVR and physical properties trends by analyzing six (6) wash bath samples collected over a determined time frame. Please contact your KYZEN Representative for more information.
- A Single Sample Wash Bath Analysis / PN# F00212 is also available to test physical properties and NVR.
- The Mettler-Toledo HE53 Moisture Balance Analyzer and its supporting items can be purchased direct from Mettler-Toledo or an authorized distributor.



## **SHELF-LIFE**

Retain samples are taken from every product batch and kept for a minimum of five years. Additionally, randomly selected retain samples of key products are maintained indefinitely. KYZEN determined the shelf life of our aqueous and non-aqueous products by closely monitoring the quality of product samples stored in these retain samples over time. The results of this study provided valuable information on the stability of our products over time.

**With few exceptions\*, KYZEN products are acceptable for use up to FIVE (5) years, when packaged in sealed containers of five gallons or greater.**

Conversely, it is more difficult to predict the long-term integrity of a product in containers holding less than five gallons, as well as unsealed containers of any size. Smaller product containers and unsealed containers are more susceptible to contamination and evaporation, which preclude extended expiration dates. Capping opened containers when not in use can minimize contamination and evaporation. Exceptions to shelf-life are clearly documented on product-specific Certificates of Compliance.

## **PRODUCT COLOR**

For all KYZEN products, *color does not indicate product quality*; therefore, color is not used as a quality control parameter or specification for final product evaluation. KYZEN products are made from a blend of raw materials, some of which are organic solvents derived from agricultural materials. After 25 years of collecting data on KYZEN products containing these raw materials, studies have shown that these materials can contribute to color variances in concentrated and diluted product, as well as slight color variations over time. These same studies confirm that while *color changes may occur, product quality is unaffected*. To assure product quality, KYZEN evaluates each lot of these raw materials to verify integrity before blending.

## **STORAGE**

Store this product in the original container at temperatures between 5-50°C / 41-122°F indoors, or out of direct sunlight. Most products have a freezing point much lower than water and a very high boiling point; therefore, most KYZEN products do not require any special handling to address temperature changes. KYZEN conducts freeze/thaw studies on all products to determine if product quality is affected by such factors and completes further testing if necessary. Following best practices always use the oldest inventory first and keep your stock rotating. *Exceptions to storage temperature requirements are clearly documented on product-specific Certificates of Compliance.*

## **HANDLING**

This product is environmentally responsible and operator safe, when handled in accordance with good industrial hygiene and safety practices. Refer to the Safety Data Sheet (SDS) regarding safe handling practices with this product. It is always good practice to wear safety glasses or goggles and Nitrile gloves whenever handling AQUANOX.

## ENVIRONMENTAL CONSIDERATIONS

KYZEN products are generally compatible with common primary and secondary waste treatment processes; however, the addition of soils removed during the cleaning process can significantly escalate environmental concerns. These environmental considerations vary widely depending on the cleaning machine and the operating parameters of your particular cleaning process. As such, the selection of the cleaning agent must incorporate the inherent impact on air emissions, water discharges and waste generation from your facility. Each of these three environmental mediums may require a permit depending on the usage rate and existence of other air emissions, water discharges and waste generation at your facility.

### ***What are KYZEN's responsibilities for proper disposal?***

- The United States OSHA Hazard Communication Standard requires suppliers to provide a GHS compliant Safety Data Sheet (SDS) for all products.
- KYZEN is responsible for providing known information on toxicity testing, health hazards, waste disposal, safe work practices, protective equipment, material reactivity and flammability, etc.
- Note: All information needed to properly classify a product for disposal, wastewater treatment or discharge into a wastewater stream can be found in the product SDS, specifically in Sections Three (3), Nine (9), Twelve (12) and Thirteen (13). Therefore, KYZEN does not disclose proprietary, non-hazardous product constituents for this purpose.

### ***What are the end user's responsibilities for proper disposal?***

- It is the user's responsibility to seek guidance and rule interpretation from appropriate authorities before applying for any required permits. This is usually accomplished by providing a copy of the product SDS, supplied by KYZEN, to local authorities. Because local regulations are often more stringent than federal regulations, it is imperative for the user to consult with local regulatory agencies before starting a waste water discharge, or introducing new chemicals or chemical processes to an existing permitted waste water discharge stream.
- The three regulatory agencies that a user must review are federal (national), state (regional), and local. Each company must meet the minimum federal standards. The state regulations may be the same or even more restrictive than the federal. Finally, the local community's regulations will be at least as restrictive as state regulations.
- The discharge of any wastewater stream, both by total flow and by chemical make-up must conform to national, regional and local regulations in all nations. Such regulations vary from very strict limits with little derogation to relatively flexible conditions. Many nations, particularly in Europe, have very strict legal requirements dictated on a national scale, covering many aspects of waste water quality. Other nations have less comprehensive regulations, covering only the more important considerations. Local authorities may offer derogations to national legislation if the local treatment plant is able to handle the otherwise out-of-tolerance waste.

**The end user is ultimately responsible for compliance with all applicable regulations.**

KYZEN is the industry leading provider of environmentally friendly cleaning chemistries and processes and contributes this knowledge and experience to a number of industry publications. For more detailed information on environmental considerations, please reference Section Nine (9) of the *IPC-CH-65B Guidelines for Cleaning of Printed Boards and Assemblies, July 2011*.

**Your KYZEN Representative is available to assist you  
throughout your cleaning process.**

**KYZEN Technical Support**

**1-800-845-5524**

**[www.KYZEN.com](http://www.KYZEN.com)**

*Materials furnished under all KYZEN orders are manufactured in accordance with KYZEN Corporation specifications. KYZEN maintains documentation of conformance to these specifications, which is available for review upon request. All raw materials used in KYZEN products are obtained from suppliers on KYZEN's Approved Vendor List (AVL), pursuant to ISO certified standard operating procedures for raw material quality control.*

### Refractive Index Procedure

This procedure provides an overview of the method used to measure the cleaner concentration based on refraction of light (refractive index).

#### **APPARATUS**

Refractometer, Brix Scale, 0 – 10 °Brix or 0 – 80 °Brix (as appropriate)

#### **REAGENTS AND MATERIALS**

Bath Sample  
Plastic Dropper

#### **HAZARDS AND PRECAUTIONS**

For specific safety information, reference the Safety Data Sheet for the product you are testing.

#### **PROCEDURE**

- A. Taking care not to collect any floating soils, use a dropper to transfer a drop of the well-agitate bath fluid onto the refractometer lens.
- B. Hold refractometer up to a light source and read degrees Brix.
- C. Determine the concentration by using the chart included at the end of this supplement. Posting this chart in a conspicuous place can serve as quick and helpful reference for your operators.

#### **NOTES AND COMMENTS**

**SPER® Scientific** and **Atago® Pocket Pal-1** refractometers are available for purchase through KYZEN. Full procedures for using these refractometers are also available. Please contact your KYZEN Representative for more information.

## AQUANOX® A4241

°Brix	%Conc	°Brix	%Conc	°Brix	%Conc	°Brix	%Conc
2.7	4.9	5.8	10.7	8.9	16.9	12.0	23.6
2.8	5.1	5.9	10.9	9.0	17.1	12.1	23.8
2.9	5.3	6.0	11.1	9.1	17.3	12.2	24.0
3.0	5.4	6.1	11.3	9.2	17.5	12.3	24.2
3.1	5.6	6.2	11.5	9.3	17.7	12.4	24.5
3.2	5.8	6.3	11.7	9.4	17.9	12.5	24.7
3.3	6.0	6.4	11.9	9.5	18.1	12.6	24.9
3.4	6.2	6.5	12.1	9.6	18.4	12.7	25.2
3.5	6.4	6.6	12.3	9.7	18.6	12.8	25.4
3.6	6.5	6.7	12.5	9.8	18.8	12.9	25.6
3.7	6.7	6.8	12.7	9.9	19.0	13.0	25.8
3.8	6.9	6.9	12.9	10.0	19.2	13.1	26.1
3.9	7.1	7.0	13.1	10.1	19.4	13.2	26.3
4.0	7.3	7.1	13.3	10.2	19.6	13.3	26.5
4.1	7.5	7.2	13.5	10.3	19.8	13.4	26.8
4.2	7.7	7.3	13.7	10.4	20.1	13.5	27.0
4.3	7.9	7.4	13.9	10.5	20.3	13.6	27.2
4.4	8.0	7.5	14.1	10.6	20.5	13.7	27.5
4.5	8.2	7.6	14.3	10.7	20.7	13.8	27.7
4.6	8.4	7.7	14.5	10.8	20.9	13.9	27.9
4.7	8.6	7.8	14.7	10.9	21.1	14.0	28.2
4.8	8.8	7.9	14.9	11.0	21.4	14.1	28.4
4.9	9.0	8.0	15.1	11.1	21.6	14.2	28.7
5.0	9.2	8.1	15.3	11.2	21.8	14.3	28.9
5.1	9.4	8.2	15.5	11.3	22.0	14.4	29.1
5.2	9.6	8.3	15.7	11.4	22.2	14.5	29.4
5.3	9.8	8.4	15.9	11.5	22.5	14.6	29.6
5.4	9.9	8.5	16.1	11.6	22.7	14.7	29.9
5.5	10.1	8.6	16.3	11.7	22.9	14.8	30.1
5.6	10.3	8.7	16.5	11.8	23.1	14.9	30.4
5.7	10.5	8.8	16.7	11.9	23.3	15.0	30.6

## Non-Volatile Residue (NVR) Procedure

KYZEN recommends Non-Volatile Residue (NVR) testing for soil contaminant as a tool for bath life monitoring of certain KYZEN products. A sample of a used wash bath is placed into an aluminum weighing dish and dried at 105°C / 221°F for a minimum of four hours. The residue that remains in the dish is allowed to cool in a desiccator and is re-weighed. The weight of the bath residue is then compared to the residue of a virgin sample of the cleaning product at the same concentration and dried in the same manner.

### APPARATUS

Forced Air Oven set at 105°C / 221°F  
Aluminum weighing dish  
(See Tip Number 1 'Tips for Successful Use' at the end of the procedure)  
Analytical Balance  
Desiccator

### REAGENTS AND MATERIALS

Transfer pipettes  
Virgin sample of the product to be tested

### HAZARDS AND PRECAUTIONS

For specific safety information, reference the Material Safety Data Sheet for the product you are testing.

### STATISTICAL CONTROL

Samples should be analyzed in triplicate. The average of the three analyses is reported.

### CALCULATIONS

$$\%NVR = [(c-a)/b] \times 100$$

a = Initial weight of the aluminum dish, b = Initial weight of the sample, c = Weight of weighing dish and residue after heating

$$\% \text{ NVR resulting from soil contamination} = \%NVR \text{ of sample} - \%NVR \text{ of virgin sample}$$

### PREPARATION

- Set the forced air oven to 105°C / 221°F for a minimum of two hours to allow the temperature to stabilize.
- Place the aluminum weighing dishes to be used into the forced air oven at 105°C / 221°F for a minimum of one hour to dry.
- Place the dried weighing dishes into a desiccator and allow to cool.

### PROCEDURE

- Place a cool weighing dish on the analytical balance. Record the weight (*this is weight 'a'*).
- Tare the balance and add approximately 10 grams of sample to the weighing dish<sup>2</sup>. Record the weight of the sample to the nearest 0.0001g (*weight 'b'*).
- Place the dish in the oven at 105°C / 221°F for a minimum of four hours<sup>3</sup>. Remove the dish to a desiccator and allow to cool.
- Weigh the cooled dish on the analytical balance and record the weight to the nearest 0.0001g (*weight 'c'*).
- Repeat Procedure steps A through D a total of three times for both the sample and the virgin product.

### TIPS FOR SUCCESSFUL USE

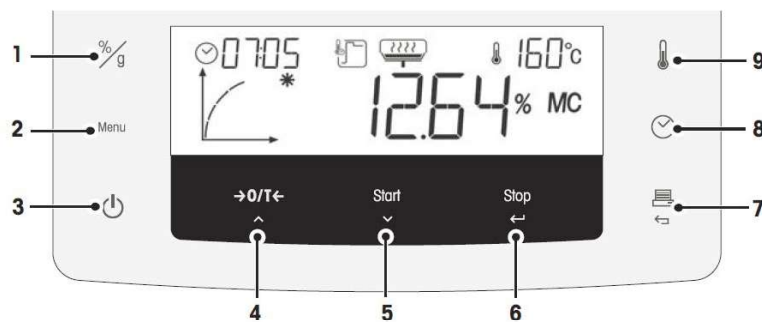
- A beaker or ceramic dish can be used in place of the aluminum pan; however, these must be compatible with the cleaning product and able to withstand the required oven temperatures.
- The amount of sample used for testing is not critical, but must be weighed accurately.
- A dirtier bath will require longer than 4 hours to completely dry. To ensure that your sample is completely dry, return the sample to the oven for 30 minutes after taking the first weight. Cool in the desiccator and reweigh. Continue this until there is less than 5% change in the weight.

## NVR Measurement by HE53 Moisture Analyzer Method

### KYZEN<sup>®</sup> AQUEOUS PRODUCTS

**This Application Note provides instructions on how to use the Mettler Toledo HE53 Moisture Analyzer to measure the Non-Volatile Residue (NVR) of KYZEN<sup>®</sup> Aqueous Products.**

1. Follow instructions in Section 4 of the *HE53 Operating Instructions* to appropriately setup the moisture analyzer and prepare for measurement.
2. Program the moisture analyzer to the settings below to begin the measurement procedure.



- a. Press Menu [2]. Use the Up [4] and Down [5] arrows to select **PROG** and press Stop [6]. Again, using either of the arrows, select **RAPID** and press Stop [6]. This selects the RAPID DRYING MODE.
  - b. Press Thermometer [9]. Adjust temperature, using arrows, to **120°C** and press Stop [6].
  - c. Press Clock [8]. Use arrows to select **TIMED** and press Stop [6]. Use arrows to adjust to **1 hour** then press Stop [6].
  - d. Press %/g [1]. Use arrows to select **%DC** and press Stop [6]. The results will be displayed in % DRY CONTENT.
3. Place the empty sample pan in the sample pan handler and place the sample pan handler in the draft shield. Ensure that the tongue of the sample pan handler lies in the slot of the draft shield.
  4. Place the provided Glass Fiber Pad in the sample pan. *Note: the pads are designed for single use and a new pad should be used for each test in ensure accuracy of the test.*
  5. Close the heating module and press O/T [4] to tare.
  6. Open the heating module cover and add approximately 2 grams of sample directly to the Glass Fiber Pad in the sample pan.
  7. Close the heating module and press Start [5]. **The %NVR results will display on the screen when finished.**

*Condensation may collect and pool in the chamber- this is normal. Follow instructions in Section 9.1 of the HE53 Operating Instructions to clean and thoroughly dry equipment between each use.*

W-824055 | REV B | Aqueous Products NVR H53 Method