

Updated Composite List of Approved Dishwashing Machines Using Chemical Sanitizing

December 2009

Background

On August 23, 1977 an amendment to Section 19-13-B42 of the Public Health Code was approved by the Legislative Regulations Review Committee (effective date August 24, 1977) allowing the use of mechanical dishwashing with chemical sanitizing. The amendment requires that the machines and chemical sanitizer be approved by the Commissioner of The Department of Public Health.

This is an up-to-date and complete listing of all chemical sanitizing dishwashing machines approved by the Department. The previous list was provided in EHS Circular Letter #2008-99, issued December 29, 2008. If any models are encountered using chemical sanitizing which have not been included on the circulated lists or if questions relative to food service equipment arise please contact Tracey Weeks at 860-509-7297.

CONVERSIONS

IT SHOULD BE NOTED THAT THE POLICY ON CONVERSIONS REMAINS UNCHANGED. CONVENTIONAL HOT WATER DISHWASHING MACHINES MAY NOT BE CONVERTED TO LOW TEMPERATURE CHEMICAL SANITIZERS EXCEPT AS SPECIFIED BELOW.

1. American Dish Service, 900 Blake Street, Edwardsville, KS 66111 Models: W, AF, AFW, AF-C, 5-AG, ET-AF, ADC-44 and Glasswasher Model ASQ, Model SS-25 and equivalent Model AD-25 (both must be installed with an American Dish Service Model 64-0001 or 64-0010 chemical sanitizer feeder). ET-A, ET-A-3, ET-A-M, ET-AF-3, ET-AF-M, ET-AH, ET-AH-3, ET-AH-M, (All installed with an America Dish Service Model 64-0001 or 64-0010 Chemical Sanitizer Feeder).

NOTE: Models ET-AF and ADC-44 must be provided with 140°F. temp. water for wash and final rinse and model ASQ must be operated with 130°F. temp. water for wash and rinse cycles. Exception: Model ET-AF manufactured after 1989 may be operated at 120°F. wash and final rinse.

Models: A-3D, (A-3D-S), AF-3D, (AF-3D-S), AFC-3D, (AFC-3D-S), AC-3D, (AC-3DS), AF-B (130°F. wash and final rinse), AH-B (130°F. wash and final rinse), A-B (130°F. wash and final rinse), "L" series including L-60, L-72, L-90 (all with the following suffixes: 3DW, 3DWC, 3D, 3DC, 3D-K, 3DC-K, 3DW-K, 3DWC-K and "s" for stainless steel).

Models: AF-ES and AFC-ES (both must be installed with American Dish Service chemical sanitizer feeder model 64-0001 or 64-0010).

Models: HT-25 (installed with American Dish Service Model 64-0001 or 64-0010 chemical sanitizer feeder); ADC-66 (installed with Beta Technology Models H9200SR or H9300S or American Dish Service Model 64-0001 or 64-0010 chemical sanitizer feeders).

Models: 5, 5-S, 5-AGS, 5-AHS, 5-AH, 5-CD-LF, 5-CD-RF.

Conversion from hot water to chemical sanitizer may be conducted by the manufacturer or authorized service agent if permitted on the data plate.

2. Auto-Chlor System Inc., 746 Poplar Avenue, Memphis, Tenn. 38105, Models: A-4, A-5, D-2, AC-44 (required 140°F. temp. water for wash and final rinse), U34, D2CL, D2CR

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3. G.S. Blakeslee and Co., 1844 South Laramie Ave., Cicero, Illinois 60650, Model D-8-LT approved only when installed with Economics Laboratory Feeder Model "Eco-Temp" 112 or Beta Technology Model P-4003, Knight Equipment Model KP 510V or KP 530V.

4. Champion Industries, Inc., 3765 Champion Boulevard, P.O. Box 4149 North Station Winston-Salem, N.C. Models: D-LF, U-LD, D-LD K-L44, K-L66 Glasswasher Model CG - all of these are installed with factory integrated chemical feeders.

Model U-LF with Beta Dispenser R-2060 or Knight PR-310.

Model L-33 with Beta Technology Series P-4000 chemical feeder model 4705-G or Champion Industries feeder model CH-7000 or Knight Dispenser model PR-330.

Models: UL-100, UL-150 (both with integral chemical feeders and **both must be installed with additional pressure type vacuum breakers**)

Technology Series Models P-4000, P-4003 or D-3300, or Champion Feeder Models CH-3500, CH-P33DS, CH-3000.

5. Chemical Methods Associates, 7125 Fenwick Lane, Westminster, California, Models A-2 C-2, B-2, AH-2, L-1, Models: VA-1, VA-2, VA-3, VA-4, VA-5, L-1X, CMA-44L, have integral chemical injectors and require 140°F. wash and final rinse, A-1, AH-1, CWS-102DB, EVA-1/EVAC-1, EVA-2/EVAC-2, EVA-3/EVAC-3, EVA-4/EVAC-4, EVA-5/EVAC-5

6. Doll-FLYNN, Inc., 4051 South M-52, Owosso, Michigan 48867, Iodophore Glasswashers Models: SW400, SW600, DF, DF-1, DF-2. All models must have wash water and final rinse temperature gauges.

7. Ecolab, Osborn Building, St. Paul, MN 55102, Models: ES-2000, ES-4000 (both with integral chemical peristaltic pumps). Models: ES-4400 CS, ES-6600 CS, **Must have an approved chemical sanitizing feeder listed by NSF and compatible with the machine.** Model ET-1 Glasswasher (built by Jackson MSC), Model ET-44 (identical to Stero Model SCT-44-CSA), ET-2.

Models: ET-5 (identical to Stero Model SGW), ES-1000 (identical to Jackson MSC Model Conservor 24 LT).
Model Omega 5 (identical to Jackson MSC Model Delta 5, and Jackson OMEGA 5).
Models: PA-1, PA-2, PA-UN, PA-C4-CS (identical to Jackson models with same designation).
Model Apex TSC with integral chemical feeder (identical to Jackson Model Typhoon).

Model Apex Double (double rack machine with integral chemical feeders) including with "CDR" (right corner door option) and "CDL" (left corner door option) suffixes.

8. Glastender Inc., 1455 Agricola Drive, Saginaw, MI 48604, Glasswasher Models: GT-24, GT-30, GT-18, GT-18+1, GT-18+2, GT18+3. All machines must have approved backflow protection devices or air gaps located outside of the machines.

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9. Hobart Corporation

Hobart Corporation, 701 Ridge Avenue, Troy, Ohio 45374, Models: AM-14, AM-14C, AM-14T, AM-14TC, AM-14F. **These models must have an NSF data plate for “dual sanitizing mode machines,” indicating that conversion to operate in a different mode shall only be converted by a Hobart or a Hobart authorized service representative.**

Models LT-20 and ET-20 (model leased by Economics Laboratory installed with an integrated chemical feeder, Price Pump Company, E-100-75-AI).

Model WM-5C (must be installed with Desert/Total Systems, Inc. model CDP-1 feeder).

Models: ET-40, ET-40XSP, ET-20XSP, WM-ES-3 (installed with either Hobart compressed air/aspirator system or Total Systems Inc. Model CDP-1 chemical sanitizer feeder), WM-ES-2, WMP-ES-2, AM-ES-12, AM-ES-12C, UM-ES-5 and Model C-ES-66. Model AM-ES-12C approved only when installed with the following: Hobart Compressed Air/Aspirator System, Beta Technology Models P-4003, and P-4101, P-4109, P-4119, P-4609, P-4619, BASF Wyandotte Model Trugard SP-1, or DuBois Model 990-318, Economics Laboratory Model ET-112, Knight Equipment Model PR-330HLT, Economics Laboratory Model ET-112, Model C-ES-66 approved only when installed with the following: Hobart Compressed Air/Aspirator System, Beta Technology Models P-4314, P-4814 and P-4914; Knight Equipment Model PR-310H; or Economics Laboratory Model ET-116.

Models: AM15, AM15T (both may be used as combination pot, pan and utensil washers and **both must have NSF Std#29 listed chemical feeders compatible with the flow rate listed for the machines at 20psi**), SR24C (with integral chemical feeder), LX18C, LX30C, LX40C, LXGC, LXiC, LXiGC (glass washer), (note all LX and Lxi Models equipped with integral chemical sanitizer feeders), C-44A, CRS-66A, CCS66A, CPW80A, C44AW, CRS66AW, CCS66AW, CPW8AW, C54A, CRS76A, CCS76A, CPW90A, C64A, CRS86A, CCS86A, CPW100A (**C-line series must have NSF Std #29 listed chemical feeders compatible with the flow rate listed for the machines at 20psi**).

10. Insinger Machine Co., 6245 State Road, Philadelphia, PA, Model 357 CS-2.

11. Jackson MSC, Highway 25 East, P.O. Box 1060, Barbourville, KY 40906, Models: AJ-44CEL (same as Ecolab ES-4400 CS), AJ-66CEL (same as Ecolab ES-6600 CS), AJ-80CEL - **Each model must have an approved chemical sanitizing feeder listed by NSF and compatible with the machine.**

Models: ES-2000V, ES-4000 (PA-2 equivalent) ES-4000 XSP, ES-2000 XSP, ES-2000 XSP-PH. Model Q2020 (must have backflow protection) and Glasswasher Model Conserver GW (also known as GLW1200), ES-2000-CS, ES-2000-CSV, ES-2000HH (min wash & rinse 130°F), ES-2000HHV (min wash & rinse 130°F), Typhoon (Ecolab brand same as Jackson model Omega CS), Typhoon-V, JPX-300LPB.

Model PA-U (Conserver 24 LT equivalent) (C-24 LT previously designated as JP-24 LT) **must be installed with a chemical feeder approved by NSF and capable of operating against a head of 25 PSI and providing 2.271 ml of a 10% chlorine sanitizer for every cycle**, Model R30 (identical to Model GW-30), Model Omega CS, Model R24 (identical to Jackson MSC Model Conserver GW).

Models: PA-2-CDL and PA-2-CDR (accepted only with Jackson chemical feeders, peristaltic pump or pinch valve); 300 XLT (wash and final rinse temp. min. 130°F) must be installed

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with NSF approved chemical sanitizing feeder; AJ-44CSL, AJ-66CSL and AJ-80-CSL (all are equipped with steam heated wash tank coils and must provide minimum 140°F for wash and 140°F minimum final rinse and 50 ppm available chlorine and must be installed with a NSF approved chemical sanitizing feeder).

Models: JPX-300L, JPX-300LP (with integral chemical feeder) ES-1000N (with integral chemical feeder), ES-1000HN (with integral chemical feeder), PA-UN (with integral chemical feeder) TempStar LT (min wash and final rinse, 130°F).

Model PA-1 (ES-2000 equivalent) with integral Anko pump (model also marketed by Eco Lab as Eco temp.), Models: 24L, 24 LF, 10L, 100L, Conserver I, and Conserver 100 acceptable only with Jackson Products chemical feeders, peristaltic pump or pinch valve. The other model approved is the Conserver II which was evaluated using a 130°F. wash temperature. Models: Conserver XL, GW-30 and ET-2 (Ecolab equivalent), WH-44CS (Operated at 140°F. wash and final rinse and with a chemical feeder approved by NSF and capable of operating against a head of 25 PSI and providing 7.43 ml of a 10% chlorine sanitizer per minute), PA-GW (Conserver GW equivalent), PA-C4-CS (WH-44CS equivalent), Conserver 24 LTP.

Models: Supra Q 2020V, Huey 165, ES-4000 CDR, ES-4000 CDL, Conserver XL2, ES-8000 CS, WH-66CS, WH-44-CSS, WH-66 CSS, Delta 5 (Same as Ecolab OMEGA 5 and Omega 5 by Jackson), Typhoon TSC (same as Ecolab Model APEX TSC).

12. **Knight Equipment Corporation**, 1340 Logan Avenue, Costa Mesa, CA 92626, Model KLE-112H/L **must have an NSF data plate for “dual sanitizing mode machines” indicating that conversion to operate in a different mode shall only be converted by a manufacturer’s authorized service representative.** Models: KLE 117I, KLE 117C, and KLE 235D must be installed with Knight Model KP-500 chemical feeders.

Models: KLE-175ST, KLE-115U, (140°F. wash and final rinse), both models installed with Knight Integral Chemical Feeder, KLE-175GT.

13. **MKE, Inc.**, 105 Dodge Street, P.O. Box 7842, Rochester, New York, Model EM-26.
14. **Moyer Diebel**, P.O. Box 4183, Winston-Salem, NC 27115. Models: DF, SW400, SW600, 500T.
15. **Paul Moore Company Limited**, Winnipeg, Canada: Barrie Glasswasher Models B-36, B-60, B-86, BW-36, BW-86.
16. **Perlick Corp.**, 8300 West Good Hope Road, Milwaukee, WI. Models: PKS 2360, PKS 3160, PKR 2424, PKBR 2424, PKBR 2424T. All models have integral chemical feeders.
17. **S. E. Rykoff & Co.**, 737 Terminal Street, P.O. Box 21903, Los Angeles, CA., Models: RY-1 and identical JS-1 (25" and 27" sizes), RY-1c (corner style), RY-2. All machines require 120°F. temp. wash and rinse and all have N.S.F. approved integral chemical sanitizer feeders.
18. **Stero Dishwashing Machine Manufacturing Company**, Glasswasher models: SGW, SGW-M SGW-H-M, SGW-2D, SGW-2D-H-M, Dishwasher Models: SCT-44-CSA (equivalent to Ecolab Model ET-44), SC-5, 6, 8, 9, SCT-66S-CS, SC-20-1, SC-20-2, SC-25-1 (and 1M) SC-25-2, (and 2M), SC-25-3 (and 3M), must be installed with: Rykoff Feeder Model LTD-1001-A; US Chemical

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Feeder Model ITC-2 or Betatronics Feeder PWM Model P-4100; Economics Laboratory Chlorine Injector Model CM-47A; Eco-Temp III, Eco-Temp 103A; DuBois Hydr-A-Trol Feeder Model LT-910-038; Lendew Co. LTD Model L-1000; Beta Technology Model D-3300, Model D-6300; or Mec-O-Matic Model 7500C, Knight Feeder Model LTD 300, Stero Peristaltic Pump.

19. Vulcan-Hart Corp., Autosan Division, 2006 Northwestern Parkway, Louisville, Kentucky 40203, Models CU-16ELT, R-16ELT, 3D2OLT, CD2OLT.

List of Evaluated Chemical Test Kits

1. American Dish Service, Inc., 2940 Fairmount St., Kansas City, MO., Precision Chlorine Test Paper.
2. Auto-chlor, Precision Test Paper, 746 Poplar Avenue, Memphis, Tenn. 38105.
3. Economics Laboratory Iodine-Chlorine Test Kit No. 101 and Ecolab and Kay Chemical (identical) chlorine test strips, Economics Laboratory, Inc. Osborn Building, St. Paul, Minn. 55102.
4. Hach Chlorine Test Kit Model CN-21P (The test strips are not approved).
5. Klenzade Products, Division of Economics Laboratory Inc., Precision Chlorine Test Paper, St. Paul, Minn. 55102.
6. Micro Essential Lab Inc., 4224 Avenue H, Brooklyn, NY, 11210, Tel: (718)-338-3618
 - (a) TESTUFF papers improved chlorine test Cat. No. CT-200 or CM-240
 - (b) HYDRION Lo Iodine Kit. Cat. No. IL-250
 - (c) HYDRION QT (quaternary ammonium compounds) Test Paper, Cat. No. QT-10.
7. Precision Laboratories, P.O. Box 788 West Chester, OH 45071, Precision Chlorine Test Paper
8. Raburn Chlorine, Iodine, Quaternary Ammonium Test Papers, Ecolab, Inc., 840 Sibley Memorial Highway, Mendota Heights, Minnesota 55118 (612) 451-5600.
9. Taylor Chemicals, Inc., 7300 York Road, Baltimore, MD., Chlorine Drop Test Kit Cat. #1505.
10. Wyandotte Chemicals Corp., Wyandotte, Michigan, Precision Chlorine Test Paper.

These are the chemical sanitizing dishwashing machines for which specifications have been submitted to the Department of Public Health for approval as required by Section 19-13-B42(j)(3)(C) of the Connecticut Public Health Code. If any of the **above models** are submitted to you for approval, they do not need to be referred to this department. All other models would require a submission to this department along with appropriate product information for review.

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Items to be Considered Prior to Final approval

1. An adequate hot water supply must be provided.
2. There must be no cross connections and the machines must be properly drained to a sewer line. We find an indirect connection suitable, however, your building inspector may require an air gap.
3. Adequate approved sanitizing solution must be on hand at all times. A week's supply should be the minimum available.
4. Drying time of utensils is longer than with hot water sanitizing and this should be considered in the initial layout of equipment.
5. The number of racks of dishes washed per hour is often less with chemical than hot water machines, another design consideration.
6. A suitable chemical test kit must be available at the establishment to monitor the effectiveness of the chemical sanitizing process and the machine operator must be familiar with its use.
7. Hard water conditions may interfere with the proper functioning of the machine due to excessive precipitation of lime as a result of the chemical reaction occurring between the sanitizer and hardness factors. Where this condition is present, and the installation of a chemical sanitizing machine is being contemplated, we suggest that you contact this office for consultation on the matter.
8. A visual flow indicator should be provided to easily and dependably monitor the operation of the sanitizing agent feeder. Other indicating devices such as audible alarms may also be used. The flow indicating devices should be installed so as to be conspicuous to the operator.
9. The installation of all chemical dishwashing machines should include a chemical sanitizing agent feeder, which has been tested and listed by the National Sanitation Foundation (NSF) for the make and model of machine in question.

This letter is an updated composite listing of approved dishwashing machines that rely on chemical sanitization. This is an approval only, based on compliance with the Public Health Code for the State of Connecticut, and does not constitute an endorsement.

Should you have any questions or comments please direct them to Tracey Weeks at 860-509-7297.

cc: Tracey Weeks, MS, RS, Coordinator, FPP DPH
Suzanne Blancaflor, M.S., Chief, EHS, DPH
Ellen Blaschinski, R.S., M.B.A., Chief, Regulatory Services Branch, DPH