BLODGETT®

KI KITCHEN INNOVATIONS 2024 AWARD
NATIONAL RESTAURANT ASSOCIATION RESTAURANT, HOTEL-MOTEL SHOW

IMVECTION®

GAME. CHANGED.

MIX & MATCH TECHNOLOGY

IMPINGEMENT
High speed hot air forced directly onto the product

CONVECTION
Hot air gently delivered to the product

SAME OVEN. SAME TIME. ZERO FLAVOR TRANSFER.

SALMON

CROISSANTS

PIZZA

VEGGIES

TABLE OF CONTENTS

Specification Sheet _____ 1-2

UL EPA 202 Test Method Evaluation for Ventless Usage _____ 7-24

Certificate of Compliance _____ 25-30

IMV-4E

ImVection Oven

Optional base & casters.
Unit will bolt directly to base without legs

OPTIONS AND ACCESSORIES

(AT ADDITIONAL CHARGE)

- ❑ 24" Stand w/Locking Casters (2 Locking)
- ❑ Extra Core Probe
- ❑ Open Kitchen SAP (Secure Access Point)

(AT NO ADDITIONAL CHARGE)

- ❑ Left Hand Hinge Door

NSF/ANSI 4
E538399

E538398

P/N 110200 Rev F (7/25)

Project _____

Item No. _____

Quantity _____

Each chamber will accept 13" x 18" standard half-size baking pans in front-to-back-position, 16" round pizza pans, or full size 12 x 20 hotel pan. All data is shown per oven section, unless otherwise indicated.

Refer to operator manual specification chart for listed model names.

EXTERIOR CONSTRUCTION

- Stainless steel front, top and sides
- Aluminized rear panels
- Powder coated control panel and top cover
- Two independent doors with removable inner glass for easy cleaning

INTERIOR CONSTRUCTION

- 4 chambers with individual heat controls
- Two Jet plate assemblies per chamber (top/bottom) removable for cleaning
- Bright, long lasting light in each chamber - recessed
- 304 Stainless steel chamber interior
- Hidden temperature thermocouple per chamber

OPERATION

- Temperature range of 300°F - 525°F
- Able to maintain 175°F temperature differential between chambers
- Variable temperature and air speed per chamber
- 2 Distinct cook modes: Impingement / Convection
- Cook mode automatically assigned according to selected temperature
- Lights indicate selected chamber for cook and signal completed cook
- USB connection for recipe upload or download

STANDARD FEATURES

- Ventless via use of catalyst per chamber
- 7" Capacitive Touchscreen in landscape format
- Open Kitchen
- Top mounted controls for serviceability
- Meat probe cooking function – single chamber, selectable
- Chamber dimensions: 5.4" Height (no rack), 4.4" Height (w/ rack), 16.75" Wide, 21.5" Depth
- Adaptive power managment optimizes cooking efficiency and power use
- Dual independent heating elements for accurate temperature control per chamber
- Pendulum door latch for positive engagement
- 4 variable speed blowers
- Adjustable Legs, 4"- 6.5" adjustable range
- Low emissivity coating on innner doors for energy efficiency

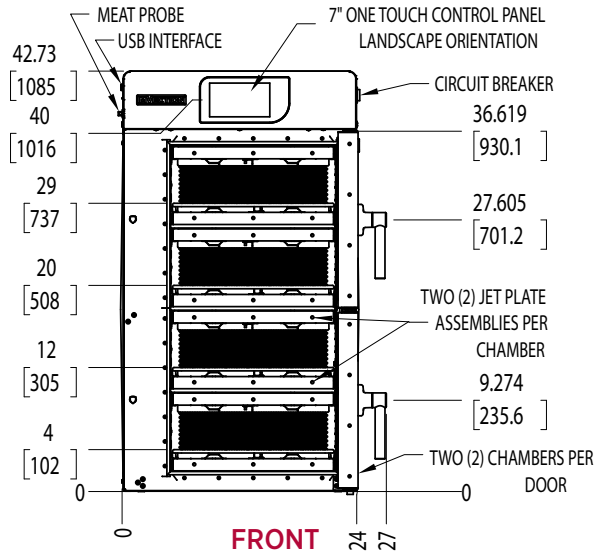
** For all international markets, contact your local distributor.*

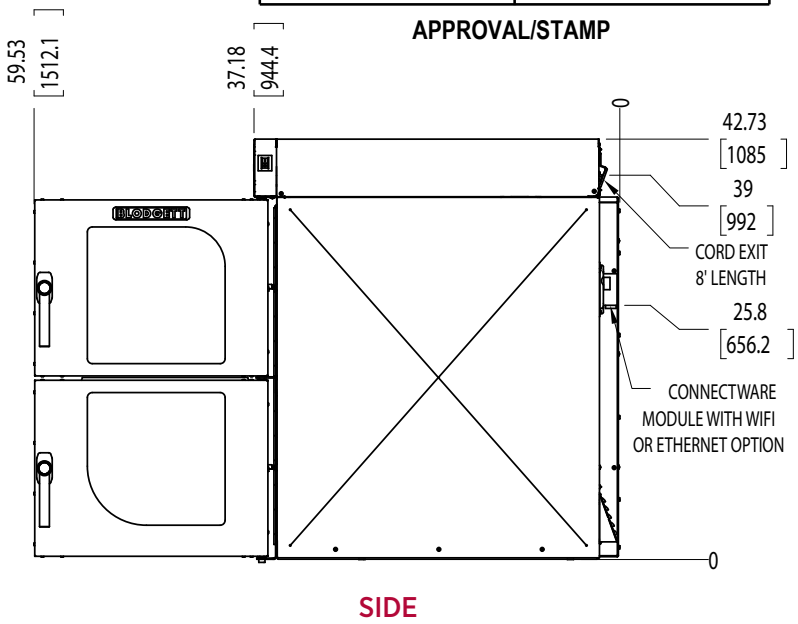
NOTE: The company reserves the right to make substitutions of components without prior notice

www.blodgett.com
42 Allen Martin Drive, Essex Junction, VT 05452
Phone: (802) 658-6600 | Fax: (802) 864-0183

IMV-4E

APPROVAL/STAMP





SHORT FORM SPECIFICATIONS Provide Blodgett ImVection oven model IMV-4E with four independently controlled cooking chambers in a unibody construction. Each chamber shall have fully welded 304 stainless steel liner and shall accept half-size sheet pans. Two independent hinged doors shall have removeable inner glass for easy cleaning. Unit shall be heated by eight tubular heating elements consisting of four operational pairs, one pair per chamber. Each chamber has an independent air distribution system via a dual inlet, dual outlet blower wheel powered by a variable speed 1/2hp motor with thermal overload protection. Each chamber shall be fitted with a bright Lamp, two jet plate assemblies, and a wire rack. Unit shall have programmable control capable of storing 100+ multi-stage recipes. Unit will provide two distinct cook modes, Impingement and Convection and will be automatically assigned according to selected temperature. Unit shall maintain up to a 175° temperature differential between adjacent chambers with a temperature range of 300°F - 525°F. Circuit breaker on side panel for easy service. 1 year parts and 1 year labor warranty. Provide options and accessories as indicated.

DIMENSIONS

Floor space	24" W x 37.18" D
Unit Height	48.75" H W/ STANDARD 6" ADJUSTABLE LEGS
With Stand	67" H W/24" STAND ON CASTERS
Interior	16.75" W x 21.5" D x 5.4" H (4.4" H w/ rack)

PRODUCT CLEARANCE

From combustible and non-combustible construction

Oven sides	Blodgett recommends 4" clearance from any heat source on the right hand side
Oven back	Blodgett recommends a 2" clearance to oven
Oven Top	Blodgett recommends 18" for servicing

VENTLESS/CATALYST

- UL (KNLZ) listed for ventless operation
- EPA test method 202, emissions of grease laden vapors
  - Product: Pepperoni Pizza
    - Results: 1.19 mg/m3
  - Product: Raw Quartered Chicken
    - Results: 3.36 mg/m3
  - Ventless Requirement: <5.00 mg/m3
- Heat gain: 1,300.8 Watts (4,440 BTU)

SHIPPING INFORMATION

Approx. Weight

Single 650lbs

Crate Size

53.5"H x 30.5"W x 47.5"D

POWER SUPPLY

VAC	Hz	Phase	kW	Amps (L1-L2-L3)
208-240	60	3	17.5	42-49

This oven uses a variable frequency drive, which can produce high frequency electrical noise. Some units must be hard wired to avoid false positives on ground fault devices susceptible to errors from electrical noise. All installations must comply with local and national codes.

CORD & PLUG

1 NEMA 15-50

MINIMUM ENTRY CLEARANCE

Uncrated	24"
Crated	30.5"

FOR COMMERCIAL USE ONLY

2024-11-18

STANLEY SIENKO
GS Blodgett Corp
42 Allen Martin Dr
Essex Junction, VT, 05452, US

E-mail: ssienko@blodgett.com

Reference: Project: 4791049821 PO: P000104040

Product: EPA 202 TEST METHOD: USING THE BLODGETT MODEL IMV4E OVEN USING THE BELOW FOOD PRODUCT AS MEDIA.

Dear Stanley,

Per your request, project 4791049821 was opened for the evaluation of grease-laden vapors produced from the Model IMV4E Convection Oven.

The scope of this project was to determine the total grease emissions from cooking Tombstone brand pepperoni pizza loaded per manufacturer's instructions as the specified food load as noted in Appendix A. Testing is conducted in accordance with EPA Method 202 test guidelines to determine ultimate results. Results are used to determine compliance with Section 59 of UL710B, Second Edition, the Standard for Recirculating Systems, formerly Section 14 of UL 197, Eighth Edition, Supplement SB, and paragraph 4.1.1.2 of NFPA96, the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. The test was conducted at our facility in Northbrook, IL on October 29th, 2024. This letter will report the results of the EPA202 test.

For the record, the test was conducted using the Blodgett IMV4E Convection Oven (Listing project ongoing) rated 208 V, 60 Hz, 3 phase, 17.5 kW. Please see appendix A attached for the power measurement during the test. The test media and food load as shown in Appendix A were taken from UL 710B, Section 59. The results are considered to be compliant with UL710B, Section 59, formerly Section 14 of UL 197, Eighth Edition, Supplement SB, and NFPA96, paragraph 4.1.1.2 when tested with the specified food load and maximum cook times since the total amount of grease-laden effluents collected was 1.19 mg/m^3, which is below the 5 mg/m^3 limit. No evaluation was conducted in regard to fire protection.

UL LLC did not select the samples, determine whether the samples were representative of production samples or witness the production of the test samples, nor were we provided with information relative to the formulation or identification of component materials used in the test samples. The test results apply only to the actual samples tested.

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This letter will serve to report that all tests on the subject product have been completed. All information generated will be retained for future use. This concludes all work associated with Project 4791049821 and we are therefore closing this portion of the project. Our Accounting Department has been instructed to bill you for all charges incurred.

Thank you for the opportunity to provide your company with these services. Please do not hesitate to contact us if you should have any questions or comments.

Very truly yours,

Fred Zaplatosch

Fred Zaplatosch
Sr. Staff Engineer
E-mail: Fred.Zaplatosch@ul.com

Reviewed by:

William G. Morler

William Morler
Engineer Manager
E-mail: William.Morler@ul.com

APPENDIX: A

CLIENT INFORMATION	
Company Name	GS Blodgett Corp
Address	42 Allen Martin Dr Essex Junction, VT, 05452, US

AUDIT INFORMATION:	
Description of Tests Per Standard Number and Edition/ Revision Date	UL 710B, 2nd Edition / 2021-10-07
	CSA C22.2 No. 109, 3rd Edition / 2021-03
	UL 300, 4th Edition / 2019-06-10
[X] Tests Conducted by[1] FERNANDO FERNANDEZ JR /	
[ ] UL Staff supervising UL Staff in training	

	TESTS TO BE CONDUCTED:			
Test No.	Start	Done[3]	Test Name	**[ ]** Comments/Parameters **[ ]** Tests Conducted by[2] **[ ]** Link to separate data files[4] **[ ]** CTF Stage/LSV declaration[5]
	10/10/2024	10/10/2024	POWER INPUT TEST THREE PHASE RATING CSA 22 2 109 M1981	
	10/28/2024	10/29/2024	CAPTURE TEST	
	10/29/2024	10/30/2024	EMISSION TEST	Two tests, pepperoni pizza first then chicken (back to back).

Instructions -
1 - When all tests are conducted by one person, name can be inserted here instead of including name on each page containing data.
2 - When test conducted by more than one person, name of person conducting the test can be inserted next to the test name. Test dates may be recorded here instead of entering test dates on the individual datasheet pages.
3 - Use of this field is optional and may be employed differently. If used to include a date instead of entering the testing date on the individual datasheet pages, the date shall be the date the test was conducted.
4 - Link to separate data files for a test can be inserted here. The link must be to a server that is accessible to UL staff, that provides for backup, required retention periods and a path, including file name, that does not change and result in a broken link. Not applicable to DAP.
5 - Indication of use of Live Stream Video by entry of "LSV" when limited to specific tests. Otherwise, it is applicable to all tests when "LSV" is selected in the TEST LOCATION table. See table for applicable Note.

Special Instructions -

[X] Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

Ambient Temperature, C	~~?~~ 10-40	Relative Humidity, %	?	Barometric Pressure, mBar	?

[X] No general environmental conditions are specified in the Standard(s) or have been identified that could affect the test results or measurements.

RISK ANALYSIS RELATED TO TESTING PERFORMANCE:

The following types of risks have been identified. Take necessary precautions. This list is not all inclusive.

[x] Electric shock	**[ ]** Radiation
[x] Energy related hazards	**[ ]** Chemical hazards
[x] Fire	**[ ]** Noise
[x] Heat related hazards	**[ ]** Vibration
[x] Mechanical	**[ ]** Other (Specify)__?

TEST LOCATION: (To be completed by Staff Conducting the Testing)					
[X]UL or Affiliate	**[]**WTDP	**[]**CTDP	**[]**TPTDP	**[]**TCP	**[]**PPP
	[]RWT (WTDP only)		**[]**SCTDP	**[]**PWT	
	[]CTF Stage 1	**[]**CTF Stage 2	**[]**CTF Stage 3	**[]**CTF Stage 4	**[]**LSV (CTF 2, 3, or 4)
Note: RWT must be selected with WTDP. LSV must be selected with CTF Stage 2, 3, or 4					
Company Name: UL LLC					
Address: 333 Pfingsten Rd Northbrook IL 60062					

TEST EQUIPMENT INFORMATION

[x] UL test equipment information is recorded on Meter Use.

TEST SAMPLE IDENTIFICATION:

The table below is provided to establish correlation of sample numbers to specific product related information. Refer to this table when a test identifies a test sample by "Sample No." only.

Sample Card No.	Date Received	Test No.+	Sample No.	Manufacturer, Product Identification and Ratings
7505102	2024-09-11	All	1	Complete Model IMV4E with all accessories, rated 208 V, 3 phase, 60 Hz, 17.5 kW
7699314	2024-10-22	All	2	SMP-Pizza Pans
				Used for two EPA202 Tests: pepperoni pizza first and chicken second.

+ - If Test Number is used, the Test Number or Numbers the sample was used in must be identified on the data sheet pages or on the Data Sheet Package cover page.

[ ] Sampling Procedure -

[ ] This document contains data or information using color and if printed, should be printed in color to retain legibility and the information represented by the color.

POWER INPUT TEST (THREE PHASE): UL 710B Sec. 44 (6.2)

RATING (CSA 22.2 109-M1981):

METHOD

[X] The supply voltage was adjusted to voltage and frequency as noted in "General Test Considerations", **[208** V**], [60** Hz**].**

The power input was measured with the appliance at the intended operating temperature under full-load conditions.

[X] To determine the proper test voltage for the Normal Temperature and Abnormal Heating Tests, the voltage was then adjusted to the value necessary to cause the appliance to draw its rated **[**current**] [**and**] [**power**].**

[Test to determine proper test voltage for c-UL testing**]**

[X] The supply voltage was adjusted to the increased test voltage as noted below. Following the test at increased test voltage, the supply voltage was adjusted to the value necessary to cause the appliance to draw the increased test current, calculated as specified below.

Increased Test Voltage (V_t): 125V for appliances rated between 110V-125V.
216V for appliances rated 208V.
250V for appliances rated between 220V-250V.

Increased Test Current (I_t): $I_r(V_t/V_r)$ = __52.1__ A

Increased Test Power (W_t): $W_r(V_t/V_r)^2$ = __19097__ W

Where V_r, I_r, and W_r, are the rated voltage, current, and power of the appliance, respectively. Note: when the appliance is rated for a range of voltages, the mean of the range is to be used as V_r.

POWER INPUT TEST (THREE PHASE): (CONT'D) UL 710B Sec. 44
RATING (CSA 22.2 109-M1981): (6.2)

PARAMETERS

Appliance Ratings:

Volts: __208 V__; Current: __50_ A; Power: __17600_ (W)

RESULTS

Operating Conditions	Rated					Measured						
		Amps			Power,	Volts			Amps			Power,
	Volts	L1	L2	L3	(W)	L1-L2	L2-L3	L1-L3	L1	L2	L3	(W)
Full power operation, rated voltage	208	---	---	---	---	208.5	208.0	209.4	45.9	46.3	46.7	16719
Full power operation, rated current	---	50	50	50	---	230.7	229.9	231.0	50.0	50.5	50.5	20105
Full power operation, rated power	---	---	---	---	17600	215.6	214.7	216.5	46.9	47.3	47.4	17616
c-UL Operating Conditions	Increased Test					Measured						
		Amps			Power,	Volts			Amps			Power,
	Volts	L1	L2	L3	(W)	L1-L2	L2-L3	L1-L3	L1	L2	L3	(W)
Full power operation, increased test voltage	216	---	---	---	---	217.1	216.1	217.3	47.2	47.5	47.7	17824
*Full power operation, increased test current	---	52.1	52.1	52.1	---	---	---	---	---	---	---	---
Full power operation, increased test power	---	---	---	---	19097	230.9	232.1	232.4	49.9	46.4	46.5	19045

[X] The input current **[**was**]** **[**was not**]** between 90% and 105% of the rated input current when the appliance was energized at rated voltage.

[X] The input power **[**was**]** **[**was not**]** between 90% and 105% of the rated input power when the appliance was energized at rated voltage.

Notes: Was not able to reach 52.2A.

CAPTURE TEST: UL 710B Sec. 58
Also reference UL 710 Sec. 31

METHOD

In accordance with Section 58.

The model _ IMV4E__ cooking appliance was located in a draft free room and is operated at the lower air flow limit. Food product as specified below was then used for testing, see Emission Testing for specific details. The cooking area is to be observed for the presence of visible smoke and grease-laden air, and the hood assembly shall completely capture all of the emission as determined by observation.

The test shall be conducted by loading the maximum amount of the food products noted below, on or in the cooking appliance and cooking the food product until it is overcooked (very well done) as follows. The cooking cycle is to be repeated at least once.

a. Deep fat fryers are to be tested with fries,
b. Pressure deep fat fryers are to be tested with chicken pieces,
c. Griddles, broilers and similar appliances are to be tested with meat cakes,
d. Ovens, roasters and similar appliances are to be tested roasting chickens, and
e. Other appliances are to be tested using the food product(s) for which they are designed.

When one of the appliances specified in (a) - (d) is not intended for cooking the specified food (for example, donut fryers), the appliance is to be tested using the food product for which the appliance is designed.
When the device and cooking process do not produce visible cooking smoke and grease laden air, a smoke generator is to be used and positioned in the cooking area to establish a more visible means for conducting this test.

COOKING PRODUCT

[X] Pepperoni pizzas, Tombstone brand - loaded per manufacturer's instructions.

The test was repeated cooking the following:

[X] Chickens - 2-1/2 to 3-1/2 lb skin-on and bone-in roasting chickens, loaded per manufacturer's instructions, quartered pieces.

RESULTS

Their **[**~~was~~**]** **[**was not**]** the presence of visible smoke and grease-laden air from the appliance during testing for both chicken and pepperoni pizza.

The sample **[**did**]** **[**~~did not~~**]** capture all of the emissions from the cooking appliance. The appliance is to be observed for the presence of visible smoke and grease laden air escaping from the hood assembly through the discharge port or through external seams, joints, penetrations, and that portion of the hood that captures grease laden vapors.

EMISSION TEST: UL 710B Sec. 59

METHOD (Pepperoni Pizza)

TEST FOR EVOLUTION OF SMOKE OR GREASE-LADEN AIR (525°F):

In accordance with Section 59.

The model IMV4E_cooking appliance was placed under the model hood operating at the lower airflow limit, and is tested using a method derived from EPA Method 202. The UL also provided pepperoni pizzas for the test.

A 12in. by 6 in. rectangular, _108_ in. tall sheet metal stack was constructed on top of the _ IMV4E_. hood and mounted above the exhaust vent of the hood. A sampling port was located approximately 80 in. downstream from the hood exhaust, at which point it was determined there was laminar flow. The sampler was assembled and an out of stack filter was used. A pre-leak check was conducted and determined to be < 0.02 ft/min. Sampling was determined to be done at 8 traverse points.

The oven was operated normally by cooking the following foods:

[X] Pepperoni pizzas, Tombstone brand - loaded per manufacturer's instructions.

The cooking cycle was repeated for 8 hours of continuous cooking.

During the cooking operation, it was noted whether or not visible effluents evolved from the air exhaust of the hood. Gauge, meter and temperature readings were taken and recorded every 10 min. After cooking, the condition of the duct was noted and a post-leak check was conducted and determined to be < 0.02 ft^3/min.

Note: Each load consisted of 4 pans filled with 2 frozen Tombstone pepperoni pizzas per pan, totaling 8 pizzas per load. Total loads cooked were 77. A total of 616 pizzas were cooked throughout the 8 hour test.

Note: The test was paused about every 2 hours for oven cleaning.

Note: Cooking settings were set to 525F at 75% fan speed.

After being allowed to cool, the sampling equipment was disassembled. The glass-filter is to be removed using a pair of forceps and placed in a clean petri dish. The dish is to be sealed and labeled "sample 1".

A sample of the acetone of the same volume that will be used to rinse-out the nozzle and probe is to be placed into a clean sample bottle, sealed, and labeled "sample 2". The level of the liquid in the sample bottle is to be recorded.

The inside of the nozzle and probe is to be rinsed with acetone taking care to collect all the rinse material in a clean sample bottle. The sample bottle is to be sealed, labeled "sample 3", and the level of the liquid in the bottle is to be recorded.

The liquid in the first three impingers is to be measured and the total volume is to be recorded which will be compared to the original volume. The liquid is to be quantitatively transferred to a clean sample bottle. Each impinger and the connecting glassware including the probe extension are to be rinsed twice with water. The rinse water is to be collected and added to the same sample bottle. The sample bottle is to be sealed, labeled "sample 4" and the level of the liquid in the bottle is to be recorded.

This rinse process is to be repeated with two rinses of methylene chloride ($MeCl_2$). The rinses are to be recovered in a clean sample bottle. The sample bottle is to be sealed, labeled "sample 5" and the level of the liquid in the bottle is to be recorded.

A volume of water approximately equivalent to the volume of water used to rinse and a volume of $MeCl_2$ approximately equivalent to the volume of $MeCl_2$ used to rinse is to be placed in two clean sample bottles. The sample bottles are to be sealed, labeled "sample 6" and "sample 7" respectively, and the level of the liquid in the bottles is to be recorded.

The weight of the fourth impinger containing the silica gel is to be recorded and then the silica gel can be discarded.

The analysis phase was done in accordance with EPA Method 202, using the out of stack filter.

RESULTS (PEPPERONI PIZZA)

The results [**are**] [~~are not~~] considered acceptable because there **[was]** **[~~was no~~]** visible smoke emitted from the exhaust of the hood during the normal cooking operation. There **[~~was~~]** **[was no]** noticeable amounts of smoke accumulated in the test room after 8 hours of continuous cooking.

The total amount of grease-laden effluents collected by the sampling equipment was found to be ____1.91_ mg/m^3, which is [**less**] [~~more~~] than 5 mg/m^3.

The total grease emissions (per clause 78.2 of 710B) in pounds per hour per linear food of hood was ___0.000985___ lb/hr/ft.

Note: Inside stack average temperature and average humidity throughout the 8 Hour testing are as follows:
Temperature: 92.08°F
Humidity: 30.33%

CONDENSIBLE MATTER (PIZZA)
(Lab Analysis)

Sample Bottle No.	Description	Volume, ml	Final Wt, mg
2	Acetone (Blank)	55.0	1.3
3	Acetone (Wash)	57.0	1.9
4&5	Solvent Phase(Wash)	230.0	4.7
4&5	Water Phase (Wash)	240+320=560	8.3
6&7	Solvent Phase (Blank)	250.0	0.7
6&7	Water Phase (Blank)	350.0	1.9

Filter paper weight before test- 605.0 mg
Filter paper weight after test- 606.1 mg

Analysis
1. The liquid level of all the sample bottles is to be measured.
2. The filter from sample one is to be removed and dried to constant weight by means of a desiccator or an oven. The weight of the filter is to be recorded.
3. The volume of sample two is to be determined. The liquid is then to be transferred to a beaker and evaporated to dryness. The volume of the liquid and the final weight of the condensable matter are to be recorded.
4. The volume of sample three is to be determined. The liquid is then to be transferred to a beaker and evaporated to dryness. The volume of the liquid and the final weight of the condensable matter are to be recorded.
5. The volumes of sample four and five are to be measured.
6. Samples four and five are to be combined. The solvent phase is to be mixed, separated, and then repeated with two $MeCl_2$ washes.
7. The solvent extracts obtained from the procedure in 6 are to be placed in a beaker and evaporated to a constant weight. The final weight is to be recorded.
8. The water phase is to be placed in a beaker and evaporated to dryness. The final weight is to be recorded.
9. The volumes of samples six and seven are to be determined. Sample bottles six and seven are to be analyzed according to procedures 8 and 7 respectively.

2025-06-11

STANLEY SIENKO
GS Blodgett Corp
42 Allen Martin Dr
Essex Junction, VT, 05452, US

E-mail: ssienko@blodgett.com

Reference: Project: 4791736520 PO: P000110441

Product: EPA 202 TEST METHOD: USING THE REVISED BLODGETT MODEL IMV4E OVEN USING THE BELOW FOOD PRODUCT AS MEDIA. THIS LETTER ALSO REPRESENTS MODEL IMV3E

Dear Stanley,

Per your request, project 4791736520 was opened for the evaluation of grease-laden vapors produced from the Model IMV4E Convection Oven. This project was a continuation of project 4791049821 using a revised sample. This test also serves to represent the Blodgett model IMV3E oven.

The scope of this project was to determine the total grease emissions from cooking 2-1/2 to 3-1/2 lb skin-on and bone-in roasting chickens, loaded per manufacturer's instructions, quartered pieces as the specified food load as noted in Appendix A to represent worst case cooking product. Testing is conducted in accordance with EPA Method 202 test guidelines to determine ultimate results. Results are used to determine compliance with Section 59 of UL710B, Second Edition, the Standard for Recirculating Systems, formerly Section 14 of UL 197, Eighth Edition, Supplement SB, and paragraph 4.1.1.2 of NFPA96, the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. The test was conducted at our facility in Northbrook, IL on May 28, 2025. This letter will report the results of the EPA202 test.

For the record, the test was conducted using the Blodgett IMV4E Convection Oven (Listing project ongoing) rated 208 V, 60 Hz, 3 phase, 17.5 kW having four cooking chambers. Please see appendix A attached for the power measurement during the test. The test media and food load as shown in Appendix A were taken from UL 710B, Section 59. The results are considered to be compliant with UL710B, Section 59, formerly Section 14 of UL 197, Eighth Edition, Supplement SB, and NFPA96, paragraph 4.1.1.2 when tested with the specified food load and maximum cook times since the total amount of grease-laden effluents collected was 3.36 mg/m^3, which is less than the 5 mg/m^3 limit. No evaluation was conducted in regard to fire protection.

This testing was also used to represent the three chamber version of the oven designated IVM3E which is smaller in size and wattage with less food throughput than the tested model IVM4E.

UL LLC did not select the samples, determine whether the samples were representative of production samples or witness the production of the test samples, nor were we provided with information relative to the formulation or identification of component materials used in the test samples. The test results apply only to the actual samples tested.

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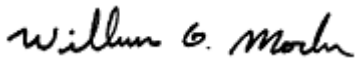
This letter will serve to report that all tests on the subject product have been completed. All information generated will be retained for future use. This concludes all work associated with Project 4791736520 and we are therefore closing this portion of the project. Our Accounting Department has been instructed to bill you for all charges incurred.

Thank you for the opportunity to provide your company with these services. Please do not hesitate to contact us if you should have any questions or comments.

Very truly yours,

Fred Zaplatosch
Sr. Staff Engineer
E-mail: Fred.Zaplatosch@ul.com

Reviewed by:



William Morler
Engineer Manager
E-mail: William.Morler@ul.com

APPENDIX: A

CLIENT INFORMATION	
Company Name	GS Blodgett Corp
Address	42 Allen Martin Dr Essex Junction, VT, 05452, US

SPECIFIED REQUIREMENTS INFORMATION:	
Description of Tests Per Standard Number and Edition/ Revision Date	UL 197, Commercial Electric Cooking Appliances, Edition 10, Revision Date 04/07/2023
	CSA C22.2 No. 109, Commercial Cooking Appliances, Edition 3, Revision Date 03/2023
	UL 710B, Recirculating Systems, Edition 2, Revision Date 10/07/2021
[x] Tests Conducted by[1]	FERNANDO FERNANDEZ JR
[x] UL Staff supervising UL Staff in training	Jesus Martinez Jr

TESTS TO BE CONDUCTED:			
Test No.	Done[3]	Test Name	**[x]** Comments/Parameters **[ ]** Tests Conducted by[2] **[ ]** Link to separate data files[4] **[ ]** CTF Stage/LSV declaration[5]
1	2025-06-02	POWER INPUT TEST THREE PHASE RATING CSA 22 2 109 M1981	See Notes
2	2025-05-27	CAPTURE TEST	See Notes
3	2025-05-28	EMISSION TEST	See Notes

Instructions -
1 - When all tests are conducted by one person, name can be inserted here instead of including name on each page containing data.
2 - When test conducted by more than one person, name of person conducting the test can be inserted next to the test name. Test dates may be recorded here instead of entering test dates on the individual datasheet pages.
3 - Use of this field is optional and may be employed differently. If used to include a date instead of entering the testing date on the individual datasheet pages, the date shall be the date the test was conducted.
4 – Link to separate data files for a test can be inserted here. The link must be to a server that is accessible to UL staff, that provides for backup, required retention periods and a path, including file name, that does not change and result in a broken link. Not applicable to DAP.
5 – Indication of use of Live Stream Video by entry of "LSV" when limited to specific tests. Otherwise, it is applicable to all tests when "LSV" is selected in the TEST LOCATION table. See table for applicable Note.
6 – If applicable. Indicate the Scheme(s) where this test data is being requested to be utilized. Examples could include US Safety Scheme, Canada Safety Scheme, ULC Mark Scheme, ENEC Mark Scheme, D Mark Scheme, UK Regulation Scheme, EU Regulation Scheme etc…

Special Instructions -

[x] Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

Ambient Temperature, C	?10-40	Relative Humidity, %	?N/A	Barometric Pressure, mBar	?N/A

[ ] No general environmental conditions are specified in the Standard(s) or have been identified that could affect the test results or measurements.

RISK ANALYSIS RELATED TO TESTING PERFORMANCE:

The following types of risks have been identified. Take necessary precautions. This list is not all inclusive.

[X] Electric shock	**[ ]** Radiation
[X] Energy related hazards	**[ ]** Chemical hazards
[X] Fire	**[ ]** Noise
[X] Heat related hazards	**[ ]** Vibration
[ ] Mechanical	**[ ]** Other (Specify)__?

Note: All files are in ECM as follows:
4791736520-20250528-5K_Data
4791736520-20250528-Data
4791736520-20250528-Excel Sheet

TEST LOCATION: (To be completed by Staff Conducting the Testing)					
[x]UL or Affiliate	**[]**WTDP	**[]**CTDP	**[]**TPTDP	**[]**TCP	**[]**PPP
	[]RWT (WTDP only)		**[]**SCTDP	**[]**PWT	
	[]CTF Stage 1	**[]**CTF Stage 2	**[]**CTF Stage 3	**[]**CTF Stage 4	**[]**LSV (CTF 2, 3, or 4)
Note: RWT must be selected with WTDP. LSV must be selected with CTF Stage 2, 3, or 4					
Company Name: UL LLC					
Address: 333 Pfingsten Rd Northbrook IL 60062					

TEST EQUIPMENT INFORMATION

[x] UL test equipment information is recorded on Meter Use.

TEST SAMPLE IDENTIFICATION:

The table below is provided to establish correlation of sample numbers to specific product related information. Refer to this table when a test identifies a test sample by "Sample No." only.

Sample Card No.	Date Received	Test No.+	Sample No.	Manufacturer, Product Identification and Ratings
8345325	2025-04-17	All	1	Complete Model IMV4E with all accessories, rated 208 V, 3 phase, 17.5 kW, 50 A, 60 Hz
8420415	2025-04-17	2-3	2	Pans for cooking
8468970	2025-05-21	2-3	3	Additional Steam Pans for Cooking

+ - If Test Number is used, the Test Number or Numbers the sample was used in must be identified on the data sheet pages or on the Data Sheet Package cover page.

[ ] Sampling Procedure -

[ ] This document contains data or information using color and if printed, should be printed in color to retain legibility and the information represented by the color.

POWER INPUT TEST (THREE PHASE): UL 197 Sec. 47
RATING (CSA 22.2 109-M1981): (6.2)

METHOD

[X] The supply voltage was adjusted to voltage and frequency as noted in "General Test Considerations", **[208** V**], [60** Hz**].**

The power input was measured with the appliance at the intended operating temperature under full-load conditions.

[X] (c-UL) - To determine the proper test voltage for the Temperature (Normal) and Temperature (Abnormal) tests, the supply voltage was adjusted to the increased test voltage as noted below. Following the test at increased test voltage, the supply voltage was adjusted to the value necessary to cause the appliance to draw the increased test **[**current**] [**and**] [**power**]**, calculated as specified below.

Increased Test Voltage (Vt): 216V for appliances rated 208V.
250V for appliances rated between 220V-250V.

Increased Test Current (It): Ir(Vt/Vr) = _52_ A

Increased Test Power (Wt): Wr(Vt/Vr)2 = _18.9__ (W)(kW)

Where Vr, Ir, and Wr, are the rated voltage, current, and power of the appliance, respectively. Note: when the appliance is rated for a range of voltages, the mean of the range is to be used as Vr.

PARAMETERS
Appliance Ratings:

Volts: __208 V__; Current: __50__ A; Power: __17.5__ kW

POWER INPUT TEST (THREE PHASE): (CONT'D) UL 197 Sec. 47
RATING (CSA 22.2 109-M1981): (6.2)

RESULTS

Operating Conditions	Specified					Measured						
		Amps			Power,	Volts			Amps			Power,
	Volts	L1	L2	L3	(kW)	L1-L2	L2-L3	L1-L3	L1	L2	L3	(kW)
Full power operation, rated voltage	208	---	---	---	---	208.1	207.9	208.1	44.9	45.8	46.0	16.416
Full power operation, rated current	---	50	50	50	---	229.5	229.2	229.4	49.0	50.0	50.0	19.773
Full power operation, rated power	---	---	---	---	17.5	217.4	217.5	217.6	46.6	46.6	46.8	17.572
C-UL Operating Conditions												
Full power operation, increased test voltage	216	---	---	---	---	216.4	216.3	216.6	46.7	47.6	47.9	17.761
Full power operation, increased test current	---	52	52	52	---	--	--	--	--	--	--	--
Full power operation, increased test power	---	---	---	---	18.9	224.6	224.0	224.5	48.2	49.1	49.2	18.981

[x] The input current **[**was**]** **[~~was not~~]** between 90% and 105% of the rated input current when the appliance was energized at rated voltage.

[x] The input power **[**was**]** **[~~was not~~]** between 90% and 105% of the rated input power when the appliance was energized at rated voltage.

CAPTURE TEST: UL 710B Sec. 58
UL 710 Sec. 31

METHOD

The model _IMV4E_cooking appliance was placed under a hood operating at 500 CFM. Food product as specified below was then used for testing, see Emission Testing for specific details. The cooking area is to be observed for the presence of visible smoke and grease-laden air, and the hood assembly shall completely capture all of the emission as determined by observation.

COOKING PRODUCT

[X] Chickens - 2-1/2 to 3-1/2 lb skin-on and bone-in roasting chickens, loaded per manufacturer's instructions, quartered pieces.

COOKING METHOD

[X] Loaded in steam pans. Each pan had 2.5 3 chickens per pan. Oven set at __525°F___.

RESULTS

Their **[was]** **[~~was not~~]** the presence of visible smoke and grease-laden air from the appliance during testing.

The sample **[did]** **[~~did not~~]** capture all of the emissions from the cooking appliance.

Note: This Capture Test and Emission Test was conducted with pans that are:

Height – 2 1/2”
Length – 20 13/16”
Width – 12 1/2”

EMISSION TEST: UL 710B Sec. 59

METHOD

TEST FOR EVOLUTION OF SMOKE OR GREASE-LADEN AIR (__525__°F):

The model _IMV4E_ cooking appliance was placed under a hood operating at 500 CFM, and was tested using a method derived from EPA Method 202. UL LLC also provided chicken for the test.

A _12_in. by _6_ in. rectangular, _108_ in. tall sheet metal stack was constructed on top of the hood. A sampling port was located approximately 80 in. downstream from the hood exhaust, at which point it was determined there was laminar flow. The sampler was assembled and an out of stack filter was used. A pre-leak check was conducted and determined to be < 0.02 ft/min. Sampling was determined to be done at 8 traverse points.

The oven was operated normally by cooking the following foods:

[X] Chickens - 2-1/2 to 3-1/2 lb skin-on and bone-in roasting chickens, loaded per manufacturer's instructions, quartered pieces. Loaded in steam pans. Each pan had 2.5 chickens 3 lbs each per pan. Oven set at __525°F___ with maxed blower settings at 100%. Each load was cooked for __28___ minutes. Each load consisted of 4 Steam pans.

The cooking cycle was repeated for 8 hours of continuous cooking.

During the cooking operation, it was noted whether or not visible effluents evolved from the air exhaust of the hood. Gauge, meter and temperature readings were taken and recorded every 10 min. After cooking, the condition of the duct was noted and a post-leak check was conducted and determined to be < 0.02 ft^3/min.

After being allowed to cool, the sampling equipment was disassembled. The glass-filter is to be removed using a pair of forceps and placed in a clean petri dish. The dish is to be sealed and labeled "sample 1".

A sample of the acetone of the same volume that will be used to rinse-out the nozzle and probe is to be placed into a clean sample bottle, sealed, and labeled "sample 2". The level of the liquid in the sample bottle is to be recorded.

The inside of the nozzle and probe is to be rinsed with acetone taking care to collect all the rinse material in a clean sample bottle. The sample bottle is to be sealed, labeled "sample 3", and the level of the liquid in the bottle is to be recorded.

Note: The client decided to pause 3:29 HR: MIN into the test. The second was pause was at 5:30 HR: MIN into the test. The client wanted to pause to wipe down any grease or burnt chicken inside the oven. FERNANDO FERNANDEZ JR 2025-06-06

EMISSION TEST (CONT'D): UL 710B Sec. 59

The liquid in the first three impingers is to be measured and the total volume is to be recorded which will be compared to the original volume. The liquid is to be quantitatively transferred to a clean sample bottle. Each impinger and the connecting glassware including the probe extension are to be rinsed twice with water. The rinse water is to be collected and added to the same sample bottle. The sample bottle is to be sealed, labeled "sample 4" and the level of the liquid in the bottle is to be recorded.

This rinse process is to be repeated with two rinses of methylene chloride ($MeCl_2$). The rinses are to be recovered in a clean sample bottle. The sample bottle is to be sealed, labeled "sample 5" and the level of the liquid in the bottle is to be recorded.

A volume of water approximately equivalent to the volume of water used to rinse and a volume of $MeCl_2$ approximately equivalent to the volume of $MeCl_2$ used to rinse is to be placed in two clean sample bottles. The sample bottles are to be sealed, labeled "sample 6" and "sample 7" respectively, and the level of the liquid in the bottles is to be recorded.

The weight of the fourth impinger containing the silica gel is to be recorded and then the silica gel can be discarded.

The analysis phase was done in accordance with EPA Method 202, using the out of stack filter.

RESULTS

The results **[are]** ~~[are not]~~ considered acceptable because there **[~~was~~]** [was no] visible smoke emitted from the exhaust of the hood during the normal cooking operation. There ~~[was]~~ **[was no]** noticeable amounts of smoke accumulated in the test room after 8 hours of continuous cooking.

The total amount of grease-laden effluents collected by the sampling equipment was found to be __3.36__ mg/m^3, which is [**less**] [more] than 5 mg/m^3.

The total grease emissions (per clause 78.2 of 710B) in pounds per hour per linear food of hood was ___0.001573___ lb/hr/ft.

Note: Additional spreadsheet is to be used when conducting the Emission Test. This spreadsheet (EPA 202) can be found in the Lab Equipment Management System (LEM) under global ID 58255.

Note: A total of 16 loads were cooked throughout the 8 hour test.

EMISSION TEST (CONT'D): UL 710B Sec. 59

Condensable Matter
(Lab Analysis)

Sample Bottle No.	Description	Volume, ml	Final Wt, mg
2	Acetone (Blank)	38.0	0.0
3	Acetone (Wash)	41.0	0.5
4&5	Solvent Phase(Wash)	165.0	5.0
4&5	Water Phase (Wash)	385+415=800	6.1
6&7	Solvent Phase (Blank)	160.0	0.0
6&7	Water Phase (Blank)	400.0	2.1

Filter paper weight before test- __608.2__ mg
Filter paper weight after test- __622.0__ mg

Analysis

1. The liquid level of all the sample bottles is to be measured.
2. The filter from sample one is to be removed and dried to constant weight by means of a desiccator or an oven. The weight of the filter is to be recorded.
3. The volume of sample two is to be determined. The liquid is then to be transferred to a beaker and evaporated to dryness. The volume of the liquid and the final weight of the condensable matter are to be recorded.
4. The volume of sample three is to be determined. The liquid is then to be transferred to a beaker and evaporated to dryness. The volume of the liquid and the final weight of the condensable matter are to be recorded.
5. The volumes of sample four and five are to be measured.
6. Samples four and five are to be combined. The solvent phase is to be mixed, separated, and then repeated with two $MeCl_2$ washes.
7. The solvent extracts obtained from the procedure in 6 are to be placed in a beaker and evaporated to a constant weight. The final weight is to be recorded.
8. The water phase is to be placed in a beaker and evaporated to dryness. The final weight is to be recorded.
9. The volumes of samples six and seven are to be determined. Sample bottles six and seven are to be analyzed according to procedures 8 and 7 respectively.

Temp and humidity throughout the 8 hours
Temp: 85.43°F
Humidity: 49.29%

Certificate of Compliance

Certificate Number:
UL-US-2440213-0

Report Reference:
E538398-20241014

Issue Date:
2024-10-16

Issued to:

GS Blodgett Corp
42 Allen Martin Dr Essex Junction, VT 05452
United States

This certificate confirms that representative samples of:
KNGT - Commercial Cooking Appliances

See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

UL 197, Edition 10, Issue Date 2010-03-17, Revision Date 2023-04-07

Additional Information:
See UL Product iQ® at https://iq.ulprospector.com for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

David Piecuch
UL Mark Certification Program Owner

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at https://www.ul.com/contact-us.

Form-ULID-019496 – ver 1.0

CERTIFICATE OF COMPLIANCE

Certificate number UL-US-2440213-0
Report reference E538398-20241014
Date 2024-10-16

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Model	Product Description
IMV4E	Commercial Electric Cooking Appliances

Certificate of Compliance

Certificate Number:
UL-CA-2430543-0

Report Reference:
E538398-20241014

Issue Date:
2024-10-16

Issued to:

GS Blodgett Corp
42 Allen Martin Dr Essex Junction, VT 05452
United States

This certificate confirms that representative samples of:
KNGT7 - Commercial Cooking Appliances Certified for Canada

See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

CSA C22.2 No. 109, Edition 3, Issue Date 2017-05, Revision Date 2023-03

Additional Information:
See UL Product iQ® at https://iq.ulprospector.com for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

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Look for the UL Certification Mark on the product.

David Piecuch
UL Mark Certification Program Owner

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at https://www.ul.com/contact-us.

Form-ULID-019496 – ver 1.0

CERTIFICATE OF COMPLIANCE

Certificate number UL-CA-2430543-0
Report reference E538398-20241014
Date 2024-10-16

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Model	Product Description
IMV4E	Commercial Electric Cooking Appliances

Certificate of Compliance

Certificate Number:
E538399

Report Reference:
E538399-20240726

Issue Date:
2024-07-30

Issued to:

GS Blodgett Corp
42 Allen Martin Dr
Essex Junction VT, 05452 United States

This certificate confirms that representative samples of:

COMMERCIAL COOKING, RETHERMALIZATION AND POWERED HOT-FOOD-HOLDING AND -TRANSPORT EQUIPMENT

See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

NSF/ANSI 4, Commercial Cooking, Rethermalization, and Powered Hot Food Holding and Transport Equipment

Additional Information:
See UL Product iQ® at https://iq.ulprospector.com for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

David Piecuch
UL Mark Certification Program Manager

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Form-ULID-013925-CoCa – ver 1.0

CERTIFICATE OF COMPLIANCE

Certificate number	E538399
Report reference	E538399-20240726
Date	2024-07-30

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Convection Oven, Model IMV4E

David Piecuch
UL Mark Certification Program Manager