

# Existent Gum in Fuels by Jet Evaporation

## test method

Gum formed during fuel storage can deposit on induction system surfaces, intake valves, stems and guides. To test for gum content, a 50mL sample is evaporated in an aluminum block bath for a specified period under controlled conditions of temperature and flow of air (aviation and motor gasolines) or steam (aircraft turbine fuel).

## existent gum test apparatus

Evaporates aircraft turbine fuel and motor and aviation gasoline samples under controlled conditions in accordance with ASTM specifications. Consists of a high temperature evaporation bath with 100mL test beakers and, for aircraft turbine fuels, a steam generator and steam superheater.

## evaporation baths

- Conforming to ASTM D381 and related specifications
- Choice of three-unit and six-unit models
- Safety top assembly allows for easy positioning and connection of all conical adapters to the bath
- Digital flowmeter for accurate and precise air flow measurement
- Built-in steam superheater
- Microprocessor programmable high accuracy temperature control
- Built-in pressure regulator

Electrically heated baths for determining existent gum in aircraft turbine fuels by steam-jet evaporation and in motor and aviation gasolines by air-jet evaporation. Fully insulated, aluminum block design assures safe, efficient high temperature operation. Equipped with air/steam pressure regulator with gauge and a digital flowmeter for adjusting air flow per ASTM specifications. Stainless steel jets deliver air or steam flow to the test wells through removable brass conical adapters. Microprocessor PID control provides quick temperature stabilization without overshoot, and the bath is protected by an overtemperature control circuit that interrupts power should bath temperature exceed a programmed cut-off point. Dual LED displays provide actual and setpoint temperature values in °C/°F format. Communications software (RS232, etc.), ramp-to-set and other enhanced features are available as extra cost options. Contact your Koehler representative for information.

Model **K33900** with Built-in Superheater—Six-unit bath with a built-in thermostatically controlled superheater which delivers dried steam to the bath inlet for steam-jet method testing of aircraft turbine fuels. Has digital indicating solid state bath temperature control with digital setpoint and display.

Model **K33780/K33781** – Three-unit bath without built-in superheater. All controls are housed in the bath cabinet.

## ordering information

### catalog no. description

<b>K33900</b>	Existent Gum Evaporation Bath, 6-Unit with Superheater, 220-240V 50/60Hz
<b>K33780</b>	Existent Gum Evaporation Bath, 3-Unit, 115V 60Hz
<b>K33781</b>	Existent Gum Evaporation Bath, 3-Unit, 220-240V 50/60Hz



K33900 Existent Gum Evaporation Bath

## specifications

Conforms to the specifications of: ASTM D381; IP 131; IP 540; ISO 6246; DIN 51784; FTM 791-3302; NF M 07-004

### Testing Capacity

**K33900:** 6 sample beakers

**K33780 and K33781:** 3 sample beakers

Maximum Temperature: 475°F (246°C)

Temperature Control Stability: 1°F ( 0.5°C)

Bath Configuration: machined aluminum block with multiple cartridge heaters

### Heater Range

**K33900:** 0-3000W

**K33780 and K33781:** 0-1500W

Superheater: (Model K33900 only) Superheating chamber and condensate trap constructed of stainless steel. Solid state thermoregulator (0-550°F)

Heater Range: 0-3000W

### Electrical Requirements

**K33900:** 220-240V 50/60Hz, Single Phase, 30A

**K33780:** 115V 60Hz, Single Phase, 13.0A

**K33781:** 220-240V 50/60Hz, Single Phase, 6.8A

**Included Accessories** Conical Brass Adapters for air/steam jets

### Dimensions lwxhx, in.(cm)

**K33900** 21"x20.5"x28" (53.34x52.07x71.12)

Net Weight 230 lbs (104.3kg)

**K33780/K33781** 32.5x11x19 (83x28x48)

Net Weight 85 lbs (38.6kg)

Shipping Information: Shipping Weight/Dimension

**K33900** 313 lbs (142kg) / 17.2 Cu. ft.

**K33780/K33781** 140 lbs (63.5kg) / 8.3 Cu. ft.



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# Existent Gum in Fuels by Jet Evaporation

## steam generator

- For steam-jet method testing of aircraft turbine fuels
  - Meets output requirements of three-unit and six-unit evaporation baths
  - Electrically heated for clean, efficient operation and ease of installation
  - Meets applicable ASME, NEC standards; UL listed, CSA approved
- Electrically heated boiler provides instantaneous and reserve steam capacity for steam-jet evaporation tests. Easy to install and operate; electrical heating eliminates the need for on-site fuel combustion. Requires only a water feed source and electrical hook-up. Ruggedly constructed, with long life industrial grade incoloy heating element. Includes a full range of safety features: automatic water level control and low water cut-off; steam safety valve; high-limit pressure cut-out with manual reset; steam pressure gauge.



K33810 Steam Superheater

## specifications

Output: 54.1 lbs steam/hr at 212°F

Bhp Rating: 1.83

kW Rating: 18

**Dimensions** l x w x h, in. (cm)

20x28x36 (51x71x91)

Net Weight: 185 lbs (83.9kg)

### Shipping Information

Shipping Weight: 200 lbs (91kg)

Dimensions: 18 Cu. ft.

## ordering information

catalog no.	description
K33850	Steam Boiler, 120/240V 60Hz, Three Phase
K33850/208601	Steam Boiler, 208V 60Hz, Single Phase, 87A
K33850/208603	Steam Boiler, 208V 60Hz, Three Phase, 50A
K33850/240601	Steam Boiler, 240V 60Hz, Single Phase, 75A
K33850/240603	Steam Boiler, 240V 60Hz, Three Phase, 43A
K33850/380603	Steam Boiler, 380V 50/60Hz, Three Phase, 27A
K33850/415503	Steam Boiler, 415V 50Hz, Three Phase, 25A
K33850/480603	Steam Boiler, 480V 60Hz, Three Phase, 22A

*Other electrical configurations for the Steam Boiler are available.*

*Please inquire with Koehler Customer Service for additional information.*

## accessories

catalog no.	description	qty
K33710	Sample Beaker, 100mL spun copper, 50x78mm	6
332-002-017	Sample Beaker, Borosilicate Glass, 100mL	
250-000-03F	ASTM 3F Thermometer Range: 20 to 760°F	2
250-000-03C	ASTM 3C Thermometer Range: -5 to +400°C	
K33810	Steam Superheater	

Provides dry superheated steam for evaporation baths not equipped with a built-in superheater. Use together with an outside steam source for steam-jet method testing of aircraft turbine fuels. Superheating chamber and condensate trap are constructed entirely of stainless steel. Solid state temperature controller adjusts between 0-550°F. Equipped with steam inlet and outlet connections and condensate drain valve. Steel exterior has a chemical resistant polyurethane enamel finish.

Dimensions 5x27x9.5" (13x70x24cm).

Shipping Weight: 23 lbs (10.4kg)

220-240V 50/60Hz, Single Phase, 6.8A

## test apparatus for steam jet method

### ordering information

catalog no.	description	qty
K33900	Existent Gum Evaporation Bath	1
K33850	Series Steam Boiler	1
K33710	Sample Beaker (or 332-002-017)	6
250-000-03F	ASTM 3F Thermometer. Range: +20 to +215°F	2
250-000-03C	ASTM 3C Thermometer. Range: -5 to +400°C	