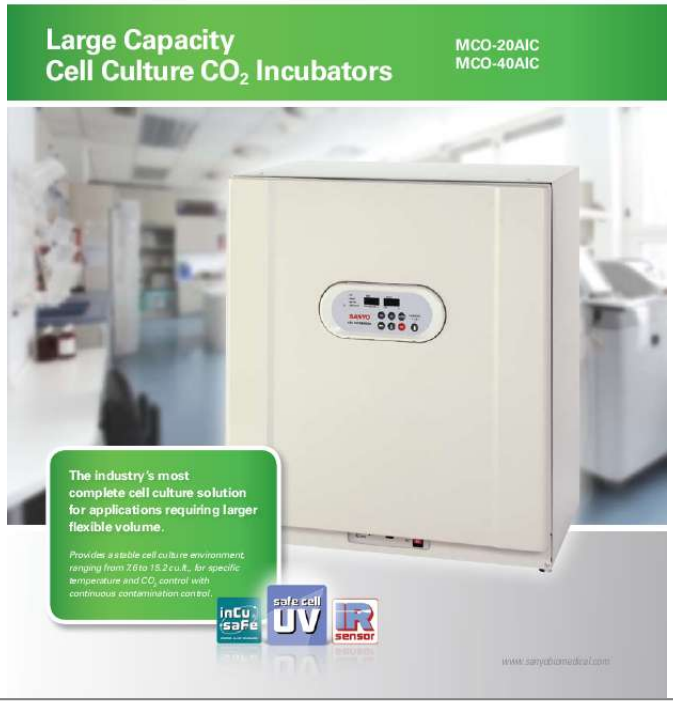

***Manual abstract:***

*Provides a stable cell culture environment, ranging from 7 to 15.2 cu.ft., for specific .6 temperature and CO2 control with continuous contamination control. www.sanyobiomedical.com General Features & Benefits The SANYO Large Capacity Cell Culture CO2 incubator is designed for a wide array of demanding and highly regulated applications in the biomedical, pharmaceutical, medical research and clinical laboratory. Representing years of research, development and component testing, the Cell Culture CO2 incubator incorporates a collective of mutually functional systems and design attributes to offer a holistic solution to cell culture protocols, from the most sophisticated to more familiar and conventional processes. Large Capacity CO2 Incubator SafeCellTM UV Decontamination Single Beam, IR CO2 Sensor Contamination Control Active Background Contamination Control At the base of the plenum, an isolated beam of high intensity, ozone-free UV light destroys contaminants in the air and in the water pan, away from cell cultures, not simply collected in a HEPA filter.*

*Plenum components isolate UV light to protect cell cultures, while the UV process continues in the background as programmed without downtime. Airborne contaminants are eliminated by an automatic 5 minute UV cycle (programmable 0 - 30 minutes). Trace contaminants which attach to walls, shelves and plenum components are destroyed by the germicidal properties of the inCuSaFeTM copper-enriched stainless steel surfaces. Humidifying Water Comparison · Sterile, humidified air is released from the lower plenum for vertical convection through and around the perforated shelves · Interior air motion stops when the door is opened, minimizing movement of room air into the chamber. MCO-20AIC Standard Standard MCO-40AIC Standard Standard UV Decontamination vs.*

*Heat Sterilization Independent testing1 confirms that the UV decontamination technique employed by the SANYO incubator is equally effective against contamination as conventional high heat sterilization over a range of +90°C to +140°C. Whenever overnight or event sterilization of the SANYO incubator chamber is desired, all interior components are removed for autoclaving, exposing all interior surfaces to ultraviolet light. During normal operation when cells are being incubated within the chamber, the UV lamp is visibly isolated from the cell culture chamber by a plenum cover over the humidity pan, permitting UV decontamination of circulated, humidified air and humidity pan surface water to remain in process without damaging the cells. 1. A Comparative Analysis of Ultraviolet Light Decontamination vs.*

*High Heat Sterilization in the Cell Culture CO2 Incubator, with the Use of Copper-Enriched Stainless Steel Construction to Achieve Active Background Contamination Control" H. Busujima; D. Mistry 2007 Decontamination · Active Background Contamination ControlTM fights contamination while cell culture protocols are in process. @@@@@@@@· High volume, low profile cabinets are stackable with field-reversible doors. · Interior components and adjustable shelves are configured for easy access. Test results after three months confirm the efficacy of SANYO SafeCellTM UV protection on humidifying water after three months. CO2 Control SANYO proprietary single-beam (IR) CO2 sensor delivers precise CO2 control, quick recovery following door openings, and auto sampling with no moving parts. · Ceramic based infrared system that is maintenance free · Continuous zero calibration is standard. MCO-40AIC Other design factors which help mitigate contamination include condensation control, inner door gasket design and triple 0.3 micron filters for vent air and CO2 sensor sampling.*

*· The SafeCellTM UV air flow plenum promotes temperature uniformity through the chamber, shaped by natural and mechanical convection through and around the perforated shelves with gentle circulation through the plenum for UV sterilization and warm water humidification. · Contaminants contained within the distilled water in the humidity pan are destroyed by UV. METHOD UV SANYO HIGH HEAT (+140°C) (+90°C) TEST RESULTS, MAXIMUM LOG REDUCTIONS Bacteria Yeast Mold > 4.5 > 2.9 > 2.7 > 4.5 > 2.9 > 2.7 > 4.5 > 2.*

*9 > 2.7 DECONTAMINATION OPTIONS Overnight Active Background Contamination ControlTM Ideal for Highly Regulated or Sensitive Applications Interior components and adjustable shelves are configured for easy access, in situ sterilization and flexiblearrangementforavarietyofapplications. Model MCO-20AIC is designed for use with a variety of standard cell culture vessels and protocols. Four adjustable shelves are included, standard; maximum shelf capacity is 15 shelves. The combination of SANYO's CO2 incubator performance functions permit use with confidence in high-value cell protocols among hard-to-grow cell lines, cells highly sensitive to contamination, ultra-sensitive media and reagents, or protocols that require a strict isolation and sterilization between processes.*

*These include but are not limited to: · · · · · · · Stemcellresearch Autologoustissueregeneration&regenerativemedicine In vitro fertilization2 Genomicandproteomicexpression Esotericplantandamphibiancellculture Hypersensitiveandtransgeniccellculture Lowmediavolumemicroplatework 1. MCO-20AIC CO2 incubators have received U.S. Food and Drug Administration 510(k) clearance for in vitro fertilization applications in accordance with the FDA Safe Medical Devices Act of 1990 and the Medical Device Amendments of 1992. Reference: Number K013703.*

*Regulation Number: 21 CFR 884-6120, Assisted Reproduction Accessories, Regulatory Class II, Product Code 85MOG, October 30, 2001 2 3 Control System Microprocessor Based Controller SANYO expertise in electronic innovations applies to the SANYO MCO-20AIC microprocessor control system. All incubator functions are managed by a fully integrated controller which acquires and processes information from data entry, setpoints and alarm parameters. ·P .I.D. Proportional, integral and derivative controls supervise temperature, and other features for accurate, repeatable performance. · A range of setpoint, alarm and programmable inputs are established through the use of function keys. · Standard parameters are factory-set for quick start-up, and all parameters may be changed as required. · A remote alarm terminal mounted at the rear of the cabinet can be connected to an external alarm system. The MCO-20AIC control panel is center mounted in the outer door for easy access, even when incubators are stacked.*

*Microprocessor based controls manage all incubator functions including setpoints, alarm parameters, UV lamp periods, programming, calibration and diagnostics. Extra-large digital displays are easy to read.*

*Tactile feedback touchpad data shift and entry keys simplify operation. When stacked, door mounted controls remain easily accessible at eye level. Digital Temperature Display Multi-function display reads actual temperature in normal mode Heat ON Lamp Indicates when Direct Heat, Air Jacket elements are powered CO2 Inject Lamp Indicates CO2 flow to chamber Digital CO2 Display Multi-function display reads actual CO2 density in normal mode Calibration Function Key Accesses calibration functions and UV lamp periods Audible Alarm Silence Key Silences alarm buzzer Gas Cylinder Supply Indicator (Optional) Indicates gas supply source UV Lamp Indicates ultraviolet lamp ON Door Open Lamp Warns of inner or outer door ajar Low Water Lamp Warns of low water level in humidity pan Overtemperature Setpoint Adjustment For manual adjustment of high temperature limit Set Function Key Accesses setpoint mode Digital Shift/Lock Key Adjusts position in digital display Gas Cylinder Switch Key (Optional) Allows manual switchover from primary to secondary gas cylinder Numeric Shift Key Adjusts digits in digital display Enter Key Writes value to the controller . Overtemperature Warning Lamp Indicates high temperature limit has been reached normal mode Start Incubation SafeCell UV Active Background Contamination Control (5 min. door openings) SafeCell UV on: 5 min. @@@@@@@@@@@@@@· The CO2 sensor automatically calibrates every four hours. @@· Actual CO2 is displayed on the main control panel. @@· An optional automatic CO2 switchover system is available.*

*See Accessories. @@@@@@@@· SafeCellTM UV includes a programmable ultraviolet lamp, isolated from cell cultures, that sterilizes conditioned air and humidity reservoir water to prevent contaminatioive minutes after door is closed decontaminates incoming room air. If UV protection is not desired. @@@@@@@@@@· The humidity removes easily for regular cleaning and refill. @@@@@@@@@@@@· Low profile cabinet with door-mounted control panel permits easy access and viewing.*

*· The outer door latch and door heater cable is easily switched if a reverse opening is required. Energizes any, all or a combination of heating elements as required. Shelves and Inventory Management Inventory management components including shelves, brackets and shelf supports are formed from copper-enriched polished stainless steel to inhibit contamination. All components are removable without tools for cleaning or autoclaving if required. · Incubator shelves are perforated to permit natural vertical air convection through and around labware.*

*· Shelves are easily accessible and can be removed with one hand for transfer to a bench or biological safety cabinet. · Shelf brackets slip easily into vertical supports that attach to interior chamber walls with clearance sufficient to permit air circulation against all interior surfaces. · Additional shelves include two brackets. See Accessories. Side, top and rear walls Side, top and rear walls, door · Cabinet knock-outs are pre-drilled and tapped to eliminate drilling and to simplify re-mounting of door hardware. · The outer door closes against a soft, easily cleaned magnetic gasket designed to eliminate ambient air shear across the glass inner door, minimizing condensation. · A door ajar alarm provides an audible and visual warning if the outer door is left open. Field Reversible Door Shelves and Inventory Management Convenient, space efficient inventory management is simplified through a system of adjustable, extendable shelves. · Inventory shelves and brackets are formed from polished copper enriched stainless steel, removable without tools, and can remain inside the incubator during the UV decontamination cycle or autoclaved separately if desired. · Shelves are perforated to permit natural vertical air convection through and around labware.*

*The field-reversible door allows universal installation using the left-hand hinge (standard) or a right-hand hinge modification · The outer door includes a universal finger grip at each side. · Mounting holes for hinge hardware are pre-drilled and capped with easily removable trim plugs. · The door heater cable plugs into the alternate connection to complete the change. Inner Door and Gasket The inner design is critical to successful contamination control technique. · The inner gasket body forms an effective thermal transition between the ambient air and warm, humidified incubator Shelves are easily arranged in 1.1"/29mm increments. Five shelves are supplied with the MCO-20AIC. Total incubator capacity is fifteen shelves. 8 9 Specifications SANYO Large Capacity CO2 Incubators Single Chamber Model Number Dual Chamber Model Number SANYO Large Capacity CO2 Incubators MCO-20AIC MCO-40AIC Single Chamber Model Number Dual Chamber Model Number MCO-20AIC MCO-40AIC Major Operating Systems SafeCell UV System TM Energy, Electrical, Utilities Standard Standard Standard Standard Standard Maximum Power Consumption Maximum Heat Discharge Electrical CO2 Gas Connection CO2 Gas Pressure CO2 Gas Cylinder Switchover System Standard Standard 310W 1062 BTU 115V,60Hz with NEMA 5-15 plug provided; requires NEMA 5-15R grounded receptacle. 4 to 6mm inner diameter tubing Nominal 4.*

*3 PSI from two-stage CO2 regulator Optional IR CO2 Sensor InCu SaFeTM Copper Enriched Stainless Steel Interior Controller/Display, Door Mounted Direct Heat, AirTM (DHA) Air Jacket Sterilization and Decontamination Interior UV Lamp, Programmable, Ozone Free Copper Enriched Stainless Steel Interior with Germicidal Protection Dimensions, Weights, Capacities Interior Exterior Volume single: 24.4" W x 20.6" F-B x 26.2" H (490 x 523 x 665 mm) / stacked: 24.4" W x 41.*

*2" F-B x 26.2" H (490 x 523 x 1330 mm) single: 30.3" W x 27 F-B x 35.4" H (620 x 710 x 900 mm) / stacked: 30.3" W x 27 F-B x 70.*

*8" H (620 x 710 x 1800 mm) .9" .9" single: 7 cu.ft. (215 liters) / stacked: 15.2 cu.ft. (43 liters) .6 Maximum 15/chamber, 5 supplied standard; 22.8"W x 17 .*

*7"F-B, 0.5" lip, 15.4 lbs/7kg capacity 205 lbs (93kg) nominal Environmental Performance Temperature Control Range Temperature Control Uniformity and Deviation CO2 Control Range and Deviation CO2 Sensor Platform CO2 Calibration Airflow Interior Humidity +5°C above ambient to 50°C (in a 5°C to 35°C ambient). ±0.25°C in 25°C ambient, setting 37°C, 5% CO2, no load. 0% to 20%, ±0.15% in 25°C ambient, setting 37°C, 5% CO2, no load. Ceramic based, single beam, measurement of actual, with continuous auto-zero calibration. Single point zero automatic Gentle vertical airflow, continuous with inner door closed. @@Catalog #MCO-420MA, remote alarm contacts standard.*

*Optional 4-20mA connection.*

*Optional PC interface, Catalog No. @@Copper-enriched stainless steel. Tempered glass. Rigid foam polyurethane. Reversible, heated. @@@@· An optional roller base is recommended for stacked installations to permit mobility if required; see Accessories. 10 11 Specifications & Accessories Accessories (SANYO Large Capacity CO2 Incubators) Single Chamber Model Number Dual Chamber Model Number MCO-20AIC MCO-40AIC Catalog Number MCO-21GC MCO-100L MCO-20RB MCO-58ST MTR-480 MCO-420MA Built-In Optional Accessories Automatic CO2 Cylinder Switchover System CO2 Cylinder Regulator, CGA fitting 320 Roller Base. For use in single or stacked installations. InCu SaFeTM Shelf and Brackets. Includes two shelf brackets. Full shelf Communications Port. Located at rear of chamber. Connector, cable and software not supplied. Communications Port. Located at rear of chamber, analog 4-20mA. SafeCellTM UV System Kit Narrow-bandwidth 253.7nm lamp and assembly. SANYO Biomedical products include a broad range of accessories to meet specific applications requirements. For accessory requirements or options not listed herein, contact SANYO or your authorized SANYO sales representative.*

*Product conforms to RoHS (European Restriction of Hazardous Substance directives) SANYO Electric Co.,Ltd., Biomedical Division, Gumma is certified for Quality management system:ISO9001/Medical devices Quality management system:ISO13485/Environmental management system:ISO14001 SafeCellTM UV U.S. Patent 6255103; Direct Heat and Air JacketTM U.S. Patent 5519188; SafeCellTM UV, InCu SaFeTM, Direct Heat and Air JacketTM, P .I.D./RTM and Active Background Contamination ControlTM, are trademarks of SANYO Electric Biomedical Co. , Ltd. © 2010 Specifications subject to change without notice SANYO North America Corporation Biomedical Solutions Division 1300 Michael Drive, Suite A, Wood Dale, IL 60191 USA Toll-Free 800-858-8442 Fax 630-238-0074 www.sanyobiomedical.com LR.MCO-20/40AIC. 6-10 .*