

BioSurface Technologies Corporation

CDC Biofilm Reactor®

The CDC Biofilm Reactor® consists of eight (8) polypropylene coupon holder rods suspended from a UHMW-polyethylene ported lid. Each coupon holder rod can accommodate three (3) 1/2-inch (12.7 mm) diameter coupons, for a total of twenty-four (24) coupons. The lid (with coupon holders and coupons) is mounted in a 1-liter glass vessel with side-arm discharge port. A liquid growth media or biocide is circulated through the vessel while mixing and shear is generated by a magnetic stir bar and vane rotated by a magnetic stir plate.

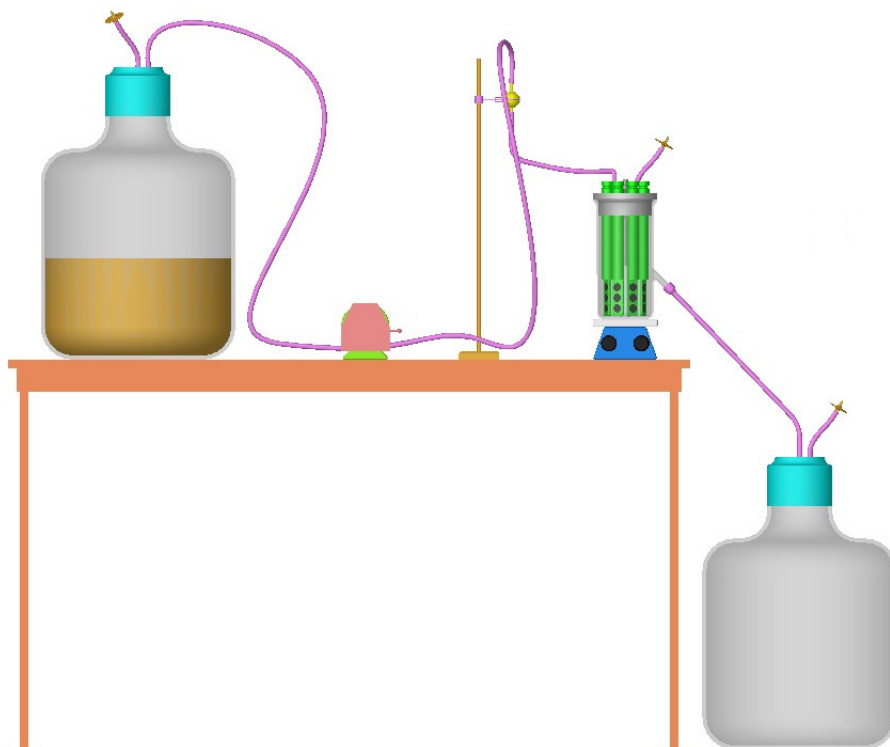
Sampling of the coupons is conducted by aseptically removing individual coupon holder rods with accompanying coupons (3). The coupon holder (or blank) rod is replaced in the lid after sampling to allow the time course experiment to continue. The coupon removed from the reactor vessel is then used for treatment evaluations, scraped or vortexed to collect the biofilm sample for further study, or imaged using microscopy and image analysis.

The CDC Biofilm Reactor® is completely autoclavable and reusable. The total liquid volume is approximately 350 ml. More than forty (40) coupon materials are available, including plastics, metals, and ceramics.



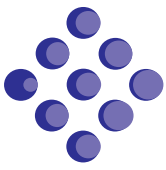
CBR 90 CDC Biofilm Reactor

(CDC Biofilm Reactor Licensed from the Centers for Disease Control)



Reactor Set-Up

(pumps, tubing, and reservoirs not included)



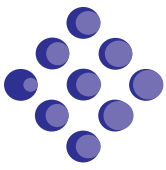
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CDC Biofilm Reactor®

Model CBR 90 - 2 CDC Biofilm Reactor w/o stir plate	\$1,200.00
Includes polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 1 CDC Biofilm Reactor System with Standard Stir Plate (115 VAC, CE)	\$2,000.00
Standard Magnetic Stir Plate (110-120 VAC, CE certified) and reactor supports. Includes reactor supports and stir plate (110-120 VAC, CE certified), polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 1 - Int CDC Biofilm Reactor System with Stir Plate (230 VAC, CE)	\$2,000.00
Standard Magnetic Stir Plate (220-240 VAC, CE Certified) and reactor supports. Includes reactor supports and stir plate (220-240 VAC, CE certified), polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 1DH CDC Biofilm Reactor System with Digital Stir/Hot Plate (115 VAC, CE)	\$3,200.00
Digital Stir/Hot Plate with Temperature Control (110-120 VAC, CE certified) and reactor supports. Includes reactor supports and digital stir/hot plate with temperature control (110-120 VAC, CE certified), polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 1DH - Int. CDC Biofilm Reactor System with Digital Stir/Hot Plate (230 VAC, CE)	\$3,200.00
Digital Stir/Hot Plate with Temperature Control (220-240 VAC, CE certified) and reactor supports. Includes reactor supports and digital stir/hot plate with temperature control (220-240 VAC, CE certified), polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	

ALL PRICING BASED ON PAYMENT TERMS OF NET 30 DAYS.

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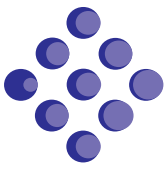
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Anaerobic CDC Biofilm Reactor®

Model CBR 90 - 3 Anaerobic/Sealed CDC Biofilm Reactor w/o stir plate	\$1,600.00
Includes lid with silicone gasket seals for coupon holder rods and lid seal to glass vessel, polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 3SS Anaerobic CDC Biofilm Reactor System with Standard Stir Plate (115 VAC, CE)	\$2,400.00
Standard Magnetic Stir Plate (110-120 VAC, CE certified) and reactor supports. Includes reactor supports and stir plate (110-120 VAC, CE certified), lid with silicone gasket seals for coupon holder rods and lid seal to glass vessel, polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 3SS-Int Anaerobic CDC Biofilm Reactor System with Stir Plate (230 VAC, CE)	\$2,400.00
Standard Magnetic Stir Plate (220-240 VAC, CE certified) and reactor supports. Includes reactor supports and stir plate (220-240 VAC, CE certified), lid with silicone gasket seals for coupon holder rods and lid seal to glass vessel, polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 3DH Anaerobic CDC Biofilm Reactor System with Digital Stir/Hot Plate (115 VAC, CE)	\$3,600.00
Digital Stir/Hot Plate with Temperature Control (110-120 VAC, CE certified) and reactor supports. Includes reactor supports and digital stir/hot plate with temperature control (110-120 VAC, CE certified), lid with silicone gasket seals for coupon holder rods and lid seal to glass vessel, polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	
Model CBR 90 - 3DH - Int Anaerobic CDC Biofilm Reactor System with Digital Stir/Hot Plate (230 VAC, CE)	\$3,600.00
Digital Stir/Hot Plate with Temperature Control (220-240 VAC, CE certified) and reactor supports. Includes reactor supports and digital stir/hot plate with temperature control (220-240 VAC, CE certified), lid with silicone gasket seals for coupon holder rods and lid seal to glass vessel, polycarbonate coupons (24), side-discharge vessel with ported lid, coupon holder rods (8), blank coupon holder rod, coupon removal tool, stir bar/vane, glass flow breaks (2), coupon manipulation tool, bacterial air vent, operations manual, 6 month limited warranty.	

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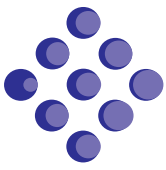
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CDC Biofilm Reactor[®] Components

CBR 2203	CDC Biofilm Reactor Coupon Holder Rod Polypropylene coupon holder rod (holds 3 coupons each)	\$48.00
CBR 2203-MBM	CDC Biofilm Reactor Membrane Holder Rod Polypropylene rod with polypropylene frame to hold membrane samples	\$86.00
CBR 2203-GL	CDC Biofilm Reactor Slide Holder Rod Polypropylene rod to hold 0.70 inch (18 mm) or less wide x 0.063 inch (1.6 mm) thick slides	\$40.00
CBR 2203-PM	CDC Biofilm Reactor Porous Media Holder Rod Polypropylene slide holder rod plus polycarbonate porous media/membrane holder cartridge	\$105.00
CBR 2203B	CDC Biofilm Reactor Coupon Holder Rod Blank Blank polypropylene coupon holder rod (no coupon recesses)	\$41.00
RD 140	1-liter Glass Vessel with Side-Arm Port at 400 ml (nominal)	\$155.00
CBR 2201/2202	Stir Bar / Vane Assembly	\$94.00
CBR 2204	Ported Lid Assembly (includes glass pivot rod and ported lid)	\$300.00
CBR 1969	Glass Pivot Rod	\$22.00
CBR 1969 BF	Glass Pivot Rod and Bulkhead Fitting with Gasket	\$28.00
CBR 9231	Replacement Stainless Steel (316) Set Screw (for CBR 2203, 24/pkg)	\$8.00
CBR 5497	Coupon Removal Tool (Hex Tool)	\$9.00
BST 02915	Bacterial Vent Filter (0.45 um)	\$22.00
CBR 2218-316	Temperature Probe Well and Bulkhead Fitting with Gasket - 316 Stainless	\$46.00
CBR 2218-AI	Temperature Probe Well and Bulkhead Fitting with Gasket - Anodized Aluminum	\$34.00
CBR 2218-Ny	Temperature Probe Well and Bulkhead Fitting with Gasket - Nylon (Does not fit most current stir plate model)	\$30.00
FB 50	Glass Flow Break	\$58.00
CBR 2232	Splash Guard Sampling Tube Insert (for 50 ml sample tube)	\$30.00
CBR 2240	Splash Guard Sampling Tube Insert (for 250 ml sample tube)	\$34.00
CBR 2210	Coupon Manipulation Tool (stainless steel coupon tweezer)	\$73.00

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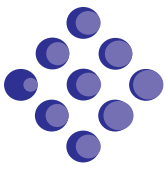
Disc Coupon for the CDC, RDR, and IBR Reactors

Diameter: 12.7mm / 0.50in - Thickness: 3.8mm / 0.15in

RD128-304	Stainless Steel (304L) Disc Coupon	\$8.50
RD128-316	Stainless Steel (316L) Disc Coupon	\$8.50
RD128-316EP	Stainless Steel (316L) Disc Coupon (Electropolished Surface)	\$18.00
RD128-316HP	Stainless Steel (316L) Disc Coupon (Hand Polished Surface)	\$26.00
RD128-347	Stainless Steel (347) Disc Coupon	\$12.00
RD128-ABS	Acrylonitrile Butadiene Styrene (ABS) Disc Coupon (non-autoclavable)	\$7.00
RD128-AL	Aluminum Disc Coupon	\$7.00
RD128-BUNA	Buna-N (AHW White High Grade FC) Rubber Disc Coupon	\$6.00
RD128-CC	Concrete Coated Polycarbonate Disc Coupon (concrete-filled polycarbonate cup)	\$11.00
RD128-CI	Cast Iron Disc Coupon	\$10.00
RD128-CoCr	Cobalt Chrome (Alloy F1537) Disc Coupon	\$40.00
RD128-CPVC	CPVC Disc Coupon	\$7.00
RD128-CS	Carbon (1018 Mild) Steel Disc Coupon	\$8.50
RD128-Cu	Copper (Alloy 101) Disc Coupon	\$9.50
RD128-DI	Ductile Iron Disc Coupon	\$10.00
RD128-EPDM	EPDM Rubber Disc Disc Coupon	\$6.00
RD128-GL	Borosilicate Glass Disc Coupon	\$11.00
RD128-GT	Glazed Tile Disc Coupon (porous ceramic substratum, one side glazed tile surface)	\$27.00
RD128-HA	Hydroxyapatite Disc Coupon	\$14.00
RD128-HDPE	High Density Polyethylene Disc Coupon	\$7.00
RD128-HY	Hypalon Rubber Disc Coupon	\$6.00
RD128-Inc	Inconel 718 (Nickel Chromium Alloy) Disc Coupon	\$22.00
RD128-LDPE	Low Density Polyethylene Disc Coupon (non-autoclavable)	\$7.00
RD128-Lucitone	Lucitone Dental Plastic Disc Coupon	\$24.00
RD128-Ni	Nickel Disc Coupon	\$17.00
RD128-NR	Natural Rubber Disc Coupon	\$6.00
RD128-Ny	Nylon Disc Coupon	\$7.00
RD128-PC	Polycarbonate Disc Coupon	\$7.00
RD128-PCC	Polycarbonate Cup Disc Coupon	\$8.50
RD128-PE	UHMW Polyethylene Disc Coupon (ultra-high-molecular-weight polyethylene)	\$7.00
RD128-PEEK	Polyether ether ketone (PEEK) Disc Coupon	\$11.00
RD128-PET	Polyethylene Terephthalate (PET) Disc Coupon	\$7.00
RD128-PETG	Polyethylene Terephthalate Glycol (PETG) Disc Coupon (non-autoclavable)	\$8.00
RD128-PG	Plexiglass (acrylic) Disc Coupon (non-autoclavable)	\$8.00
RD128-PL	Porcelain Disc Coupon (porous ceramic substratum, one side glazed porcelain)	\$42.00
RD128-PP	Polypropylene Disc Coupon	\$7.00
RD128-PS	Polystyrene Disc Coupon (non-autoclavable)	\$7.00
RD128-PTFE	Polytetrafluoroethylene (PTFE) Disc Coupon	\$8.50
RD128-PU	Polyurethane Rubber Disc Coupon (non-autoclavable)	\$6.00
RD128-PVC	PVC (White, Type 1) Disc Coupon (non-autoclavable)	\$7.00
RD128-Si	Silicone Rubber Disc Coupon	\$6.00
RD128-Ti	Titanium Disc Coupon	\$15.00
RD128-Ti6AL	Titanium Alloy (Ti-6AL-4V ELI) Disc Coupon	\$16.00
RD128-Vi	Viton Disc Coupon	\$6.00

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Slide Coupon for the CDC and ISBR Reactors

Width: 15.2mm / 0.6in - Length: 75mm / 3in

CBR 2128-304	304 Stainless Steel Slide Coupon	\$10.00
CBR 2128-316	316 Stainless Steel Slide Coupon	\$10.00
CBR 2128-CS	1018 Carbon (Mild) Steel Slide Coupon	\$10.00
CBR 2128-GL	Borosilicate Glass Slide Coupon	\$14.00
CBR 2128-HDPE	HDPE Slide Coupon	\$8.00
CBR 2128-PC	Polycarbonate Slide Coupon	\$8.00
CBR 2128-PP	Polypropylene Slide Coupon	\$8.00
CBR 2128-PVC	PVC Slide Coupon	\$8.00

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