DuPont Biomedical Sensor Materials

Product Selector Guide

DUPONT BIOMEDICAL SENSOR SELECTOR GUIDE

Application Area	Silver Conductor Compositions	Silver/Silver Chloride Compositions (Ag/AgCl Ratio)	Carbon and Silver/Carbon Compositions	Novel Materials Compositions	Dielectric Compositions
Biosensors (eg Blood Glucose)	5000 5025 5028 5064H	5874 (65/35) 5880	5085 (Ag/C) BQ221 (C) BQ242 (C)	Custom Products in Development	5018 5036
Iontophoretic Drug Delivery	5000	5874 (65/35) (Cath/Anode) 5876 (30/70) (Cathode)			5018 5036
Ion Selective Sensors (eg Blood Electrolytes)	5000 5025 5028 5064H	5874 (65/35)	7102 (C)	Custom Products in Development	5018 5036
Medical Electrodes	5000 5069 (WB Flexo)	5880(80/20)	5067 (C) (WB Flexo)	Custom Products in Development	5018 5036
PTF Sensors	5000 5025 5028 5064H		5524 (Ag/C)	BQ321 (Pt) BQ331 (Au) 7112 (Pt/C) BQ311 (Zn)	5018 5036

KEY: SB= Solvent Based. WB=Water Based. Flexo=Compositions designed for Flexo or Gravure Printing Applications

Silver Conductor Compositions

DuPont Product	Applications	Attributes	Coverage(cm^2/g)	Curing Box, Reel to Reel (min)	Solids Average Wt %	Viscosity Range cps	Resistivity mohms/sq/mil
5000	Biosensors Iontophoretic Drug Delivery Medical Electrodes PTF Sensors	High Abrasion Resistance Long Screen Life	475 (ft^2/gal)	120°C (8 - 10) 140°C (1 - 1.5)	52 [A]	3,500 – 16,000[1]	≤15
5025	Biosensors PTF Sensors	High Temperature Use Fast Drying Composition	230 - 320	140°C (1 - 1.5)	61 [A]	20,000 – 30,000[1]	≤15
5028	Biosensors PTF Sensors	High Electrical Conductivity Compatible with Lamination Processing	230 -320	120°C (8 - 10) 140°C (1 - 1.5)	70 [A]	15,000 – 30,000[1]	≤12
5064H	Biosensors PTF Sensors	High Conductivity	170	130°C (10 - 20) 140°C (2)	65 [B]	8,000 – 18,000[1]	6
5069	Biosensors	Flexo process Water Based Formulation	235 (ft^2/gal)	70°C (2 - 5) >85°C (<1)	48 [B]	23 -33 sec[2]	450

KEY: [A] 750ºC Solids %, [B] 150ºC Solids %, [1]Brookfield; Standard Operating Use Temperature for most products ≤ 90ºC

Silver/Silver Chloride Compositions

DuPont Product	Applications	Attributes	Coverage (cm^2/g)	Curing Box, Reel to Reel (min)	Solids Average Wt %	Viscosity Range cps	Resistivity mohms/sq/mil
5880	Medical Electrodes	Ratio of 80/20 Ag/AgCl Low Electrode Polarization High Electrical Conductivity Excellent Stability on contact with high salt gels	~200	120°C (8 - 10) 140°C (3 - 4)	85 [B]	30,000 – 60,000[1]	≥ 25
5874	Biosensors Iontophoretic Drug Delivery Ion Selective Sensors	Ratio of 65/35 Ag/AgCl Equal electrode capacity for anode and cathode for iontophoretic applications Low Electrode Polarization High Stability Reference Potential Fast Drying High solids for thicker printing	53.1	120°C (3 -5)	85 [A]	23,000 – 35,000[1]	≥ 70
5876	Iontophoretic Drug Delivery	High Silver Chloride Content Ratio of 30/70 Ag/AgCl Fast Signal Response Stable Potential		120°C (3 -5) 140°C (1 – 1.5)	83 [B]	23,000 – 35,000[1]	N.A.

Water Base Ag/AgCl inks must not come in contact with any metal other than Cr, Ni or Stainless Steel

KEY: [A] 750°C Solids %, [B]150°C Solids %, [C]120°C Solids %, [1]Brookfield, [2]Zahn; Standard Operating Use Temperature for most products ≤ 90°C

Carbon and Silver/Carbon Compositions

DuPont Product	Applications	Attributes	Coverage (cm^2/g)	Curing Box, Reel to Reel (min)	Solids Average Wt %	Viscosity Range cps	Resistivity mohms/sq/mil
5067 (C)	Medical Electrodes	Flexo processable Water Based Formulation	310 (ft^2/gal)	70°C (2 - 5) >85°C (<1)	50 [B]	39-44 sec[2]	<50000 (50ohms)
5085 (Ag/C)	Biosensors	Lower Cost than Ag Conductors			42.5 [B]	20,000 – 50,000[1]	<120
5524(Ag/C)	PTF Sensors	Excellent High Temperature Stability for High Temperature Applications. Lower Cost than Ag Conductors	140 - 300	120°C (5 -6) 140°C (1)	55 [A]	200,000– 425,000[1]	15 – 35
7102 (C)	Ion Selective Sensors	Excellent Adhesion to Polycarbonate Substrates High Conductivity Carbon Composition High Temperature Stability	103	120°C (5 - 6)	36 [B]	60,000 – 125,000[1]	≤ 35000
BQ221	Biosensors	High Sensitivity/Long Screen Life High Conductivity Carbon Composition	200	130°C (5 -10) 140°C (1)	33 [B]	35,000 – 85,000[1]	<100000 (<100 ohms)
BQ242	Biosensors	High Electrochemical Activity High conductivity and adhesion to polyester Superior electrode wettability	250 - 280	130°C (5 -15)	39 [B]	30,000 – 70,000[1]	20000-25000 (20-25 ohms)

KEY: [A] 750ºC Solids %, [B]150ºC Solids %, [1]Brookfield, [2]Zahn; Standard Operating Use Temperature for most products ≤ 90ºC

Novel Materials Compositions

Du Pont Product	Applications	Attributes	Coverage (cm^2/g)	Curing Box, Reel to Reel (min)	Solids Average Wt %	Viscosity Range cps	Metal Chemistry
7112	Biosensors	Platinum coated carbon High sensitivity for a variety of sensor applications	52	130°C (5 – 10) 140°C(1)	36.0 [B]	40,000 – 80,000	Pt/C
BQ311	PTF/Biosensors	Zn composition Anode for screen printed batteries	165	130°C (5 – 10) 140°C(1)	78.5 [B]	20,000 - 40000[1]	Zn
BQ321	PTF Sensors	Pt Composition High Sensitivity Strong Adhesion to a variety of PET substrates	52	130°C (5 – 10) 140°C(1)	45.2 [B]	5,000 – 10,000[1]	Pt
BQ331	PTF Sensors	Au Composition High Sensitivity Strong Adhesion to a variety of PET substrates	36	130°C (5 – 10) 140°C(1)	86.7 [B]	15,000 –30,000[1]	Au

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Dielectric Compositions

DuPont Product	Applications	Attributes	Coverage (cm^2/g)	Curing Box, Reel to Reel (min)	Solids Average Wt %	Viscosity Range cps	BDV V/mil
5018	Biosensors Iontophoretic Drug Delivery Ion Selective Sensors PTF Sensors	Fast UV Cure Composition High BDV Performance Zero VOC's	290	UV curable(500 – 1500 mJ)	N/A	15,000 – 30,000[1]	500
5036	Biosensors Non-Invasive Glucose Iontophoretic Drug Delivery	Useful as protective barrier for graphic ink overprint Strong Adhesion to a variety of PET substrates Compatible with most BQ series conductors.		130°C	35 [B]	28,000-30,000[1]	500

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