



The ideal 3D printing surface

IDEAL JACOBS CORP.

515 Valley Street Maplewood, NJ 07040
Tel: (973)275-5100 www.idealjacobs.com

BuildTak Top Surface Substrate Data:

DESCRIPTION: Poly (bisphenol-A-carbonate)

COMPOSITION/INFORMATION ON INGREDIENTS

This product consists primarily of high molecular weight polymers which are not expected to be hazardous. According to the manufacturer it does not contain restricted substances mentioned in the table below as intentionally added components or as expected process impurities [above corresponding threshold limits mentioned in the below table]

Reference Detail/Reference Regulation	Restricted Substances	Threshold Limits (% W/W)
Restriction of Hazardous Substances (RoHS 2.0) Directive (2015/863/EU), End-of-Life Vehicles (ELV) Directive (2000/53/EC and their amendments)	-Lead and its compounds -Mercury and its compounds -Hexavalent Chromium compounds -Polybrominated biphenyls (PBBs) and -Polybrominated diphenyl ethers (PBDEs) -Bis(2-ethylhexyl) phthalate (DEHP) -Butyl benzyl phthalate (BBP) -Dibutyl phthalate (DIBP)	0.1 each
	-Cadmium and its compounds	.01

Thermal Properties:	ASTM Test Method	Units (USCS)	Value	ISO Test Method	Units (SI)	Value
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft ² /°F/in	1.35		W/m ² K	0.2
Coefficient of Thermal Expansion	ASTM E831	(x10 ⁻⁵ /°F)	3.2	ISO 11359	(x10 ⁻⁵ /°C)	5.8
Specific Heat @40°F (4°C)	ASTM E1269	Btu/lb/°F	0.3		KJ/Kg-°C	1.25
Vicat Softening Temperature, B	ASTM 1525-00	°F	323		°C	160
Heat Deflection Temp. by TMA at 1.8 Mpa	modified	°F	290	ISO 75 Modified	°C	145
Shrinkage at 302°F (150°C)	ASTM D1204	%	1.4		%	1.4
Brittleness Temperature	ASTM D746	°F	211		°C	-135

Flammability	ISO Test Method	Value
10mil thickness	ISO 9773, IEC 60695-11-10	V-2 (No Color)



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HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Plastic film or sheet
- Can burn in a fire creating dense toxic smoke.
- Molten plastic can cause severe thermal burns.
- Vapor produced during melt processing may cause eye, skin, and respiratory tract irritation.
- Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

HMIS Ratings: Health = 0; Flammability = 1; Reactivity = 0; PPE = B

POTENTIAL HEALTH EFFECTS

INGESTION: Not acutely toxic.

INHALATION: Inhalation of product not likely due to physical form.

EYE CONTACT: Product may cause irritation or injury due to mechanical action.

SKIN CONTACT: Product may cause irritation or injury due to mechanical action.

CHRONIC / CARCINOGENICITY

Processing fumes may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing fume condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

MEDICAL RESTRICTIONS: There are no known human health effects aggravated by exposure to this product.

However,

certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors.

FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water. Get medical attention if irritation develops or persists. After initial flushing, remove any contact lenses.

SKIN: Wash with soap and water. Get medical attention if irritation develops or persists. For hot product, immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

INGESTION: No hazard in normal industrial use. Do not induce vomiting. Seek medical attention if symptoms develop.

INHALATION: No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

PROCESSING

FUMES:

Processing fumes inhalation may be irritating to the respiratory tract. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

FIRE FIGHTING MEASURES

FIRE FIGHTING: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Water may be the most suitable extinguishing media due to its cooling properties on molten compounds.



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EXTINGUISHING MEDIA: Water spray and foam. Carbon dioxide and dry chemical are not recommended because their lack of cooling capacity may permit reignition.

HAZARDOUS COMBUSTION PRODUCTS: Intense heat, smoke, carbon dioxide, carbon monoxide, hydrocarbon fragments

CONDITIONS OF FLAMMABILITY: Requires a continuous flame source to ignite.

EXPLOSION DATA: Material not sensitive to mechanical impact but is sensitive to static discharge under dust cloud conditions.

RESPIRATORY: When using this product at elevated temperatures, implement engineering systems, administrative controls, or a respiratory protection program (including a respirator approved for protection from organic vapors, acid gases, and particulate matter) if processing fumes are not adequately controlled or operators experience symptoms of overexposure.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid

ODOR AND APPEARANCE: Sheet or film with slight or no odor

MELTING POINT: This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.

SPECIFIC GRAVITY (WATER = 1): >1

WATER SOLUBILITY: Insoluble

% VOLATILES: Negligible.

STABILITY AND REACTIVITY

STABILITY: Stable

REACTIVITY: Not reactive under recommended conditions of handling, storage, processing, and use.

CONDITIONS TO AVOID: Do not exceed melt temperature recommendations in this document.

HAZARDOUS DECOMPOSITION PRODUCTS

Processing fumes evolved at recommended processing conditions may include trace levels of phenol, alkylphenols, diarylcarbonate and other formula dependent volatile organic compounds.

TOXICOLOGICAL INFORMATION

ACUTE HEALTH HAZARDS

ACUTE ORAL: Estimated to be > 5.0 g/kg

ACUTE DERMAL: Product not considered primary skin irritant. Draize Skin Primary Irritation Score (rabbit) for similar products, in finely divided form, for a 24-hour exposure is 0. Not expected to be a skin sensitizer based on results of Modified Buehler Guinea Pig Sensitization Test from similar products. Dermal LD50 (rabbit) > 2g/kg, estimated.

ACUTE INHALATION: Processing fumes from similar products are not considered toxic. In acute inhalation tests, laboratory rats were exposed to processing fumes at concentrations exaggerating those that would likely occur in workplace situations. No deaths or signs of toxicity, except transient irritancy in some cases, were noted during the 6 hour fume exposure tests. There were no distinct or consistent treatment related tissue or organ changes noted in gross necropsies.

EYE CONTACT: Product may cause irritation or injury due to mechanical action.

SKIN CONTACT: Product may cause irritation or injury due to mechanical action.

ECOLOGICAL INFORMATION

GENERAL: This material is not expected to be harmful to the ecology.



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DISPOSAL INFORMATION

WASTE DISPOSAL: Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.

POSSIBLE EPA WASTE CODES: Spent or discarded material is not expected to be a hazardous waste.

BuildTak Top Surface Adhesive Data:

DESCRIPTION: Silicone adhesive with Clear PET carrier and White PET liner

Product EHS & Regulatory Information

Regulations and Industry Standards

SDS (US OSHA)

This product is an article and therefore is not subject to the requirements of the US Occupational Safety and Health Administration's (OSHA) Hazardous Communications Standard 29 CFR 1910.1200(b)(6)(v) to provide a Safety Data Sheet (SDS).

CPSIA 2008

A general conformity certification per the US Consumer Product Safety Act, 15 U.S.C. § 2063 (a)(1), as revised by section 102 of the 2008 US Consumer Product Safety Improvement Act, is not required or appropriate for the requested product.

US FALCPA

This product does not contain components identified in the United States Food Allergy Labeling and Consumer Protection Act of 2004. Specifically, the components identified in this act: milk, egg, fish, crustacean shellfish, tree nuts, wheat, peanuts, soybeans, and/or proteins thereof.

US FDA Indirect Food Additive

This product does not meet the requirements in United States Food and Drug Administration (Code of Federal Regulations) 21 CFR 174-186 Regulations.

CONEG

This product complies with the US CONEG (Coalition of Northeastern Governors) Model Toxics in Packaging Legislation as there is no intentionally added lead, cadmium, hexavalent chromium or mercury, and the sum total concentration of these substances in the product does not exceed 100 ppm by weight.

California Proposition 65

This product is in compliance with Proposition 65. There is no exposure to any Proposition 65 chemical(s) in the reasonably anticipated use of this product that would require a Proposition 65 warning.

EU REACH

This product is an article, without intended release of a chemical substance, under the Regulation No 1907/2006 of the European Parliament and the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (refer to REACH, Article 3(3)). It is not a chemical preparation. Therefore, it is not subject to the pre-registration or the registration process. It does not require a safety data sheet. This product does not contain at greater than 0.1% by weight a Substance of Very High Concern (SVHC) substance identified according to Article 59 of REACH. This declaration reflects the substances on the candidate SVHC list, effective December 2015.



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EU Azo Colourant Directive

This product does not contain azodyes which, by reductive cleavage of one or more azo groups, may release one or more of the aromatic amines listed in the Appendix I, in detectable concentrations above 30 ppm in the finished article or in the dyes parts thereof, according to the testing method established in accordance with Article 2a of this European Commission Directive 2002/61/EC (2004/21/EC).

EU CMR Directive

This product does not contain an ingredient at $\geq 0.1\%$ that is classified as a Category 1 or 2 carcinogen, mutagen, or reproductive toxicant according to Annex VI (Table 3.2) of European Regulation 1272/2008 on Classification, Labelling, and Packaging of Dangerous Substances and Mixtures or that is classified by this products vendors as an EU Category 1 or 2 carcinogen, mutagen, or reproductive toxicant according to the criteria of European Council Directive 67/548/EEC (the Dangerous Substances Directive).

EU Food Allergens

This product does not contain components identified in EU Directive 2000/13/EC as amended by 2003/89/EC and 2007/68/EC on Labeling, Presentation and Advertising of Foodstuffs. Specifically, the components identified in Annex IIIa of these directives: cereals containing gluten, crustaceans, eggs, fish, peanuts, soybeans, milk, nuts, celery, mustard, sesame seeds, sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/L expressed as sulfur dioxide, lupin, mollusks, and/or derivatives thereof.

EU RoHS

This product does not exceed the maximum concentration values (MCVs) in EU Directive 2002/95/EC (Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment), as amended, and/or the MCVs set under EU Directive 2011/65/EU (RoHS recast), as stated in Annex II to that directive. This which means that each of the homogenous materials within this product does not exceed the following MCVs: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; and (b) 0.01% (by weight) for cadmium.

Persistent Organic Pollutants (POPs)

This product does not contain a substance(s) present on the Stockholm Convention on Persistent Organic Pollutants (POPs), Annex A, B, or C ratified 8 May 2009.

China RoHS

This product or part does not exceed the maximum concentration values (MCVs) in SJ/T 11363-2006 (Management Methods for Prevention and Control of Pollution from Production of Electronic Information Products), which means that each of the homogenous materials within this product is below the following MCVs: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); and (b) 0.01% (by weight) for cadmium.

Conflict Minerals

"Conflict Minerals," which the U.S. Securities and Exchange Commission ("SEC") has defined as gold, columbite-tantalite (coltan), cassiterite, wolframite, or their derivatives (tin, tantalum, or tungsten), are not contained in and are not "necessary to the functionality or necessary to the production" of the above-listed product, as the term "necessary to the functionality or the production" is defined under the SEC's Conflict Minerals Rule. 77 Fed. Reg. 56274 (Sept. 12, 2012).

Fluorinated Greenhouse Gas

A Fluorinated Greenhouse Gas (or F-Gas) listed under Annex I and II of Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 is not intentionally added to the product, nor is it intentionally



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used in the manufacture of this product.

Chemicals and/or Compounds of Interest

Acrylamide : This chemical or chemical compound is not intentionally added.
Alkylphenol (AP) : This chemical or chemical compound is not intentionally added.
Alkylphenoethoxylates (APE) : This chemical or chemical compound is not intentionally added.
Antimony and (Sb) compounds : This chemical or chemical compound is not intentionally added.
Aromatic Amines : This chemical or chemical compound is not intentionally added.
Arsenic and (As) compounds : This chemical or chemical compound is not intentionally added.
Asbestos : This chemical or chemical compound is not intentionally added.
Azo colorants : This chemical or chemical compound is not intentionally added.
Beryllium and (Be) compounds : This chemical or chemical compound is not intentionally added.
Bismuth and (Bi) compounds : This chemical or chemical compound is not intentionally added.
Bisphenol A (BPA) : This chemical or chemical compound is not intentionally added.
Butylated hydroxytoluene (BHT) : This chemical or chemical compound is not intentionally added.
Butyl Benzyl Phthalate (BBP) : This chemical or chemical compound is not intentionally added.
Cadmium and (Cd) compounds : This chemical or chemical compound is not intentionally added.
Chlorinated Paraffins, Short Chain : This chemical or chemical compound is not intentionally added.
Chromium and (Cr) compounds : This chemical or chemical compound is not intentionally added.
Colophony (Rosin) : This chemical or chemical compound is not intentionally added.
Crystalline Silica : This chemical or chemical compound is not intentionally added.
Decabromodiphenyl ether (deca-BDE) : This chemical or chemical compound is not intentionally added.

Dibutyl Phthalate (DBP) : This chemical or chemical compound is not intentionally added.
Dibutyl Tin compounds : This chemical or chemical compound is not intentionally added.
di(2-Ethylhexyl) Phthalate (DEHP) : This chemical or chemical compound is not intentionally added.
Disodecyl Phthalate (DIDP) : This chemical or chemical compound is not intentionally added.
Diisononyl Phthalate (DINP) : This chemical or chemical compound is not intentionally added.
Dimethyl Fumarate (DMF) : This chemical or chemical compound is not intentionally added.
Dimethylacetamide : This chemical or chemical compound is not intentionally added.
di-n-Octyl Phthalate (DNOP) : This chemical or chemical compound is not intentionally added.
Dioxins and Furans : This chemical or chemical compound is not intentionally added.
Dyes : This chemical or chemical compound is not intentionally added.
Epoxy compounds : This chemical or chemical compound is not intentionally added.
Flame Retardants (not PBB or PBDE) : This chemical or chemical compound is not intentionally added.
Flavorings : This chemical or chemical compound is not intentionally added.
Formaldehyde : This chemical or chemical compound is not intentionally added.
Genetically Modified Organisms (GMOs) : This chemical or chemical compound is not intentionally added.
Gluten : This chemical or chemical compound is not intentionally added.
Halogenated compounds : This product can be considered "low halogen". Low halogen is defined by the Electrotechnical Commission (IEC) 61249-2-21 standard as having less than 900 ppm bromine, less than 900 ppm chlorine, and/or less than 1500 ppm total bromine and chlorine.
Hexavalent Chromium and (Cr+6) compounds : This chemical or chemical compound is not intentionally added.
Lead and (Pb) compounds : This chemical or chemical compound is not intentionally added.
Materials of human or animal origin : This chemical or chemical compound is not intentionally added.
Melamine : This chemical or chemical compound is not intentionally added.
Mercury and (Hg) compounds : This chemical or chemical compound is not intentionally added.
4,4'-Methylenebis(2,6-diethylaniline) : This chemical or chemical compound is not intentionally added.
Musk Xylene : This chemical or chemical compound is not intentionally added.
Natural Rubber Latex : This chemical or chemical compound is not intentionally added.
Nickel and (Ni) compounds : This chemical or chemical compound is not intentionally added.



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Nonylphenol (NP) : This chemical or chemical compound is not intentionally added.
Nonylphenol ethoxylates (NPE) : This chemical or chemical compound is not intentionally added.
Nuts : This chemical or chemical compound is not intentionally added.
Organochlorine Pesticides : This chemical or chemical compound is not intentionally added.
Organophosphate Pesticides : This chemical or chemical compound is not intentionally added.
Organotin compounds : This chemical or chemical compound is not intentionally added.
Ozone Depleting Chemicals (ODCs) : This chemical or chemical compound is not intentionally added.
Perfluorooctane sulfonate (PFOS) : This chemical or chemical compound is not intentionally added.
Perfluorooctanoic acid (PFOA) : This chemical or chemical compound is not intentionally added.
Phthalates : This chemical or chemical compound is not intentionally added.
Polycyclic Aromatic Hydrocarbons (PAHs) : This chemical or chemical compound is not intentionally added.
Polybrominated Biphenyls (PBB) : This chemical or chemical compound is not intentionally added.
Polybrominated Diphenylethers (PBDE) : This chemical or chemical compound is not intentionally added.
Polychlorinated Biphenyls (PCBs) : This chemical or chemical compound is not intentionally added.
Polychlorinated Naphthalenes (>3 chlorine atoms) : This chemical or chemical compound is not intentionally added.
PVC (polyvinyl chloride) : This chemical or chemical compound is not intentionally added.
Radioactive Substance : This chemical or chemical compound is not intentionally added.
Selenium and (Se) compounds : This chemical or chemical compound is not intentionally added.
Silicone : This product is known to contain this chemical or chemical compound.
Tetrabromobisphenol A (TBBA) : This chemical or chemical compound is not intentionally added.
Tributyl Tin compounds : This chemical or chemical compound is not intentionally added.
Triphenyl Tin compounds : This chemical or chemical compound is not intentionally added.
Zinc and (Zn) compounds : This chemical or chemical compound is not intentionally added.
Additional Chemical Information: Fluorine in the liner, silicone adhesive

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