



Chemicals

Organic Photovoltaics and Ancillary Products

Complete portfolio for optimal results

Organic Photovoltaics

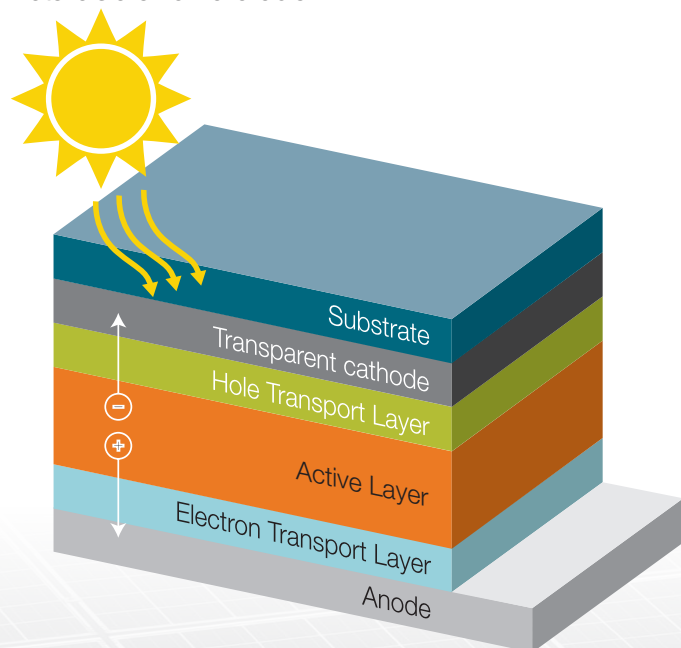
Innovation and high performance

Introduction

Organic photovoltaics (OPV) are solar cells based on organic semiconductors, which are thin, light, flexible and mechanically resistant. OPV research has progressed rapidly during the last decade, their performances rapidly closing the gap with conventional silicon technologies.

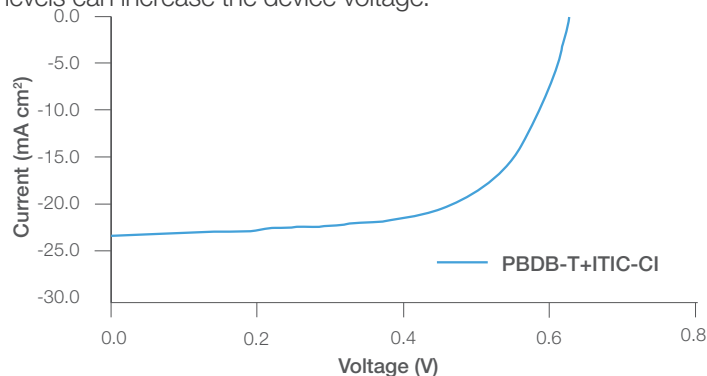
OPV's show potential as an affordable energy technology, that moreover are light, can have tandem structures, and can be fabricated on plastic substrates, with potential applications in consumer electronics.

In OPV architecture the active layer is a blend of two organic semi-conductors known as the donor (p-type material) and the acceptor (n-type material). Their properties can be fine-tuned for specific needs and many high-performance materials are now available.



Conventional OPV architecture

To achieve high-performance devices, the n-type and the p-type materials must have compatible optical and electronic properties. Semiconductors with complementary absorptions will help to convert more photons and energy and maximize the current produced. Fine-tuning the energy levels can increase the device voltage.



N-Type materials

Fullerene derivatives have traditionally performed very well as n-type materials. However, novel conjugated molecules have recently gained traction due to increased performances and stability. N-type polymers are also on the rise as an alternative. (Product shot from slide)

P-Type materials

Conjugated polymers are the most common materials in OPV. They are the source of many of the desirable properties of OPV devices:

- Mechanically robust
- Chemical stability
- Printability
- High photon absorption



We offer a range of both n- and p-type products which are always extensively purified to deliver optimal results every time.

N-Type materials

VWR Cat. No.	Description	CAS#	Sizes
ALFAH66574	ITIC	1664293-06-4	100 mg, 250 mg, 500 mg
ALFAH66664	ITIC-F	2097998-59-7	100 mg, 250 mg, 500 mg
ALFAH66521	ITIC-Cl	2253663-81-7	100 mg, 250 mg, 500 mg
ALFAH66830	IDT-2BR	2042521-91-3	100 mg, 250 mg, 500 mg
ALFAH66666	o-IDTBr	2077945-91-4	100 mg, 250 mg, 500 mg
ALFAH66142	EH-IDTBr	2055812-53-6	100 mg, 250 mg, 500 mg
ALFAH66656	IEICO	2055812-53-6	100 mg, 250 mg, 500 mg
ALFAH66546	IEICO-4F	2089044-02-8	100 mg, 250 mg, 500 mg
ALFAH66752	IEICO-4Cl	2240998-88-1	100 mg, 250 mg, 500 mg
ALFAH66460	Y5	2304444-48-0	100 mg, 250 mg, 500 mg
ALFAH66585	Y6	2304444-49-1	100 mg, 250 mg, 500 mg
ALFAH66035	ITIC-M	2047352-80-5	100 mg, 250 mg, 500 mg
ALFAH66315	BTP-4Cl		100 mg, 250 mg, 500 mg

P-Type materials

VWR Cat. No.	Description	CAS#	Sizes
ALFAH66399	PPDT2FBT (PCE9.3)	1620673-07-5	100 mg, 250 mg, 500 mg
ALFAH66975	PTB7-Th (PCE10)	1469791-66-9	100 mg, 250 mg, 500 mg
ALFAH66014	PfBT4T-2DT	1430201-60-7	100 mg, 250 mg, 500 mg
ALFAH66126	PfBT4T-2OD (PCE11)	1644164-62-4	100 mg, 250 mg, 500 mg
ALFAH66526	PBDB-T (PCE12)	1415929-80-4	100 mg, 250 mg, 500 mg
ALFAH66713	PDCBT	1609536-17-5	100 mg, 250 mg, 500 mg
ALFAH66867	PBDB-T-2Cl	2239295-71-5	100 mg, 250 mg, 500 mg
ALFAH66179	PBDB-T-2F (PCE14)	1802013-83-7	100 mg, 250 mg, 500 mg
ALFAH66106	PTQ10	2270233-86-6	100 mg, 250 mg, 500 mg
ALFAH66319	PDPPTT	1260685-66-2	100 mg, 250 mg, 500 mg
ALFAH66726	P3HT (OPV grade - 91-94% RR)	1609536-17-5	500 mg, 1 g

Ancillary products

Within our extremely broad catalog portfolio we offer many additional ancillary products that can be either used to accompany these products or for the synthesis of additional analogues to meet your research requirements.

These include interlayer, donor, electrode and substrate materials as well as the solvents and additives for processing.

Also included is a wide range of heterocyclic building blocks such as numerous thiophene compounds and much more.

These products are available in a variety of pack sizes and grades to meet your research requirements. Larger quantities are available on request.



Interlayers

VWR Cat. No.	Description	CAS#	Sizes
ALFA36260	Ethanolamine, ACS, 99+%	141-43-5	500 mL, 4 x 500 mL
ALFAA17459	2-Methoxyethanol, 99%	109-86-4	500 mL, 2500 mL, 10000 mL
ALFA11837	Molybdenum(VI) oxide, 99.95% (metals basis)	1313-27-5	100 g, 500 g, 2 kg
ALFA77124	Titanium(IV) n-butoxide, 99+%	5593-70-4	10 g, 100 g, 500 g
ALFAA12909	Zinc acetate dihydrate, 97+%	5970-45-6	100 g, 500 g, 2.5 kg

Electrode and substrate materials for OPV

VWR Cat. No.	Description	CAS#	Sizes
ALFA40417	Aluminum slug, 1.98mm (0.078in) dia x 8.0 mm (0.315in) length, 99.99% (metals basis)	7429-90-5	10 g, 50 g, 250 g
ALFA40317	Gold shot, semi-spherical, 6.35mm (0.25in) & down, Premion®, 99.999% (metals basis)	7440-57-5	1 g, 5 g
ALFA36348	Indium tin oxide, 99.99% (metals basis)	50926-11-9	5 g, 25 g, 100 g
ALFA41264	Silver sputtering target, 50.8mm (2.0in) dia x 3.18mm (0.125in) thick, 99.99% (metals basis)	7440-22-4	1 each
ALFA44958	Silver Conductive Ink	7440-22-4	5 g, 25 g
ALFA45661	Silver Conductive Ink	7440-22-4	5 g, 25 g, 100 g, 1 kg

Donor materials for the active layer

VWR Cat. No.	Description	CAS#	Sizes
ALFA44745	Poly(3-hexylthiophene-2,5-diyl), regioregular, low metals	104934-50-1	0.1 g, 0.5 g

Solvent/additive for processing

VWR Cat. No.	Description	CAS#	Sizes
ALFAA11824	4-Bromoanisole, 99%	104-92-7	100 g, 500 g, 2500 g
ALFA32614	Chloroform, ACS, 99.8+%	67-66-3	1, 4, 4 x 4 L
ALFAA13881	1,2-Dichlorobenzene, 99%	95-50-1	500 g, 2500 g, 10000 g
ALFAA10867	1,8-Diiodooctane, 97+%, stab. with copper	24772-63-2	25 g, 50 g
ALFAA12260	1-Methyl-2-pyrrolidinone, 99+%	872-50-4	500 g, 2500 g, 10000 g
ALFAA15364	4-Methoxybenzaldehyde, 98%	123-11-5	50 g, 250 g, 1000 g
ALFAA13897	2-Methylanisole, 99%	578-58-5	50 g, 250 g, 1000 g
ALFAA15327	1-Methylnaphthalene, 96%	90-12-0	100 g, 54-00 g
ALFAA11358	o-Xylene, 99%	95-47-6	100 mL, 500 mL, 2500 mL

Building Blocks

Bithiophene derivatives

VWR Cat. No.	Description	CAS#	Sizes
ALFAA12335	2,2'-Bithiophene	492-97-7	1 g, 5 g, 25 g
ALFAH56337	5,5'-Dibromo-2,2'-bithiophene	4805-22-5	5 g, 25 g

Fluorene derivatives

VWR Cat. No.	Description	CAS#	Sizes
ALFAH56320	9,9-Di-n-dodecyl-2,7-dibromofluorene	286438-45-7	25 g, 100 g
ALFAH51955	9,9-Di-n-octylfluorene-2,7-diboronic acid bis(pinacol) ester	196207-58-6	1 g, 5 g

Thiophene derivatives

VWR Cat. No.	Description	CAS#	Sizes
ALFAH56243	2-Bromo-3-hexylthiophene	69249-61-2	1 g, 5 g, 25 g
ALFAA14022	3-bromothiophene	872-31-1	10 g, 50 g, 250 g
ALFAA13406	2,5-dibromothiophene	3141-27-3	25 g, 50 g, 250 g
ALFAA10512	3,4-dibromothiophene	3141-26-2	1 g, 5 g, 25 g
ALFAH55891	3-hexylthiophene	1693-86-3	1 g, 5 g, 25 g
ALFAH55466	3-octylthiophene	65016-62-8	1 g, 5 g, 25 g
ALFAA11930	Thiophene-2-carbonitrile	1003-31-2	25 g, 100 g, 500 g

Thienothiophene derivatives

VWR Cat. No.	Description	CAS#	Sizes
ALFAH30637	Thienothiophene	251-41-2	1 g, 5 g

Other building blocks & monomers

VWR Cat. No.	Description	CAS#	Sizes
ALFAH56306	4,7-dibromo-benzo-[2,1,3]-thiadiazole	15155-41-6	1 g, 5 g, 25 g
ALFAA17104	2-ethyl-1-hexanol	104-76-7	500 mL, 2500 mL
ALFAB23532	2-ethylhexyl bromide	18908-66-2	25 g, 100 g, 500 g

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