

3MMaterials™



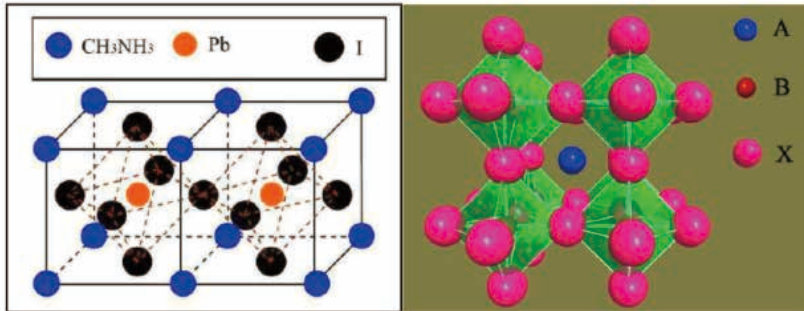
钙钛矿太阳能电池材料

MATERIALS FOR PEROVSKITE SOLAR CELLS

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钙钛矿太阳能电池材料

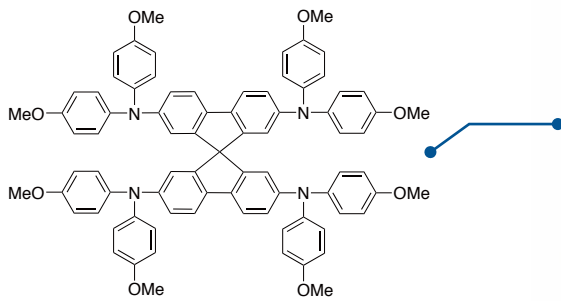
3A化学提供钙钛矿层制备原料、空穴及电子传输材料供您选择。



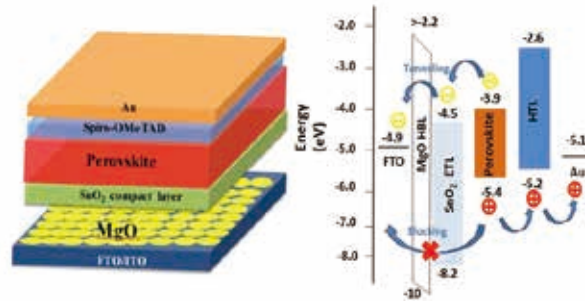
近几年钙钛矿晶体结构[ABX_3 (如A: $CH_3NH_3^+$ /B: Pb^{2+} /X: I⁻ Br⁻ Cl⁻)]在太阳能电池研究领域引起了广泛的关注。钙钛矿作为光吸收、转换、载流子传输的核心材料使太阳能电池获得更高的效率。

钙钛矿太阳能电池结构一

方国家课题组采用宽带隙的氧化镁纳米层，修饰钙钛矿太阳能电池的二氧化锡电子传输层和阳极之间的界面，形成二氧化锡/氧化镁双薄层结构，实现了有效的电荷运输和空穴阻挡特性，使该器件获得了18.82%的光电转换效率。



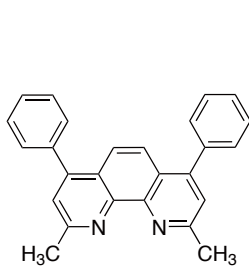
207739-72-8
A69889
Spiro-MeOTAD, 99.5%



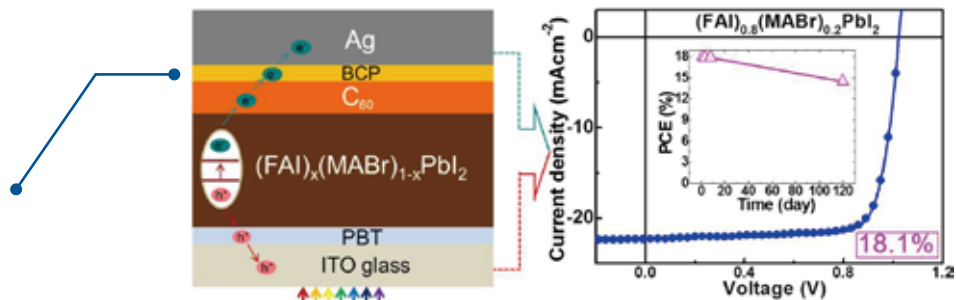
参考文献: Ma J, Yang G, Qin M, et al MgO Nanoparticle modified anode for highly efficient SnO_2 -based planar perovskite solar cells[J]. Advanced Science, 2017, 4(9)

钙钛矿太阳能电池结构二

辛颖教授课题组通过调控钙钛矿吸光材料的组成来改善钙钛矿太阳能电池的稳定性，同时提高电池的光电转换效率达18.1%。



4733-39-5
A69327
BCP, Sublimed, 99%



参考文献: Yan W, Rao H, Wei C, et al . Highly efficient and stable inverted planar solar cells from $(FAI)_x(MABr)_{1-x}PbI_2$ perovskites[J]. Nano Energy, 2017, 35:62-70.

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钙钛矿层——金属卤化物

货号	CAS	产品名称	纯度规格	包装
A60708	10101-63-0	碘化铅(II) Lead(II) iodide	20mesh, 99.999%	1g, 5g, 25g
A60713	10101-63-0	碘化铅(II) Lead(II) iodide	ultra dry, 99.999% (metals basis)	5g, 25g, 100g
A60702	10031-22-8	溴化铅(II) Lead(II) bromide	99.999% (trace metals basis)	10g, 25g
A60711	10031-22-8	溴化铅(II) Lead(II) bromide	ultra dry, 99.999% (metals basis)	1g, 5g, 25g
A60731	10031-22-8	溴化铅(II) Lead(II) bromide	-20mesh, 99.999%	5g, 25g
A60712	7758-95-4	氯化铅(II) Lead(II) chloride	ultra dry, 99.999% (metals basis)	5g, 25g, 100g
A66066	7647-17-8	氯化铯 Cesium chloride	99.99% (metals basis)	10g, 50g
A66072	7789-17-5	碘化铯 Cesium iodide	99.9%	25g, 100g
A66073	7789-17-5	碘化铯 Cesium iodide	ultra dry, 99.998% (metals basis)	1g, 10g, 50g
A66061	7787-69-1	溴化铯 Cesium bromide	99.9% (metals basis)	50g, 250g
A67413	7787-64-6	碘化铋(III) Bismuth(III) iodide	99.99%	2g, 10g, 50g
A65631	10294-70-9	碘化锡(II) Tin(II) iodide	ultra dry, 99.999% (metals basis)	1g, 5g, 25g
A65632	7790-47-8	四碘化锡(IV) Tin(IV) iodide	ultra dry, 99.999% (metals basis)	5g, 25g

钙钛矿层——有机鎇盐

货号	CAS	产品描述	包装
A10761	124-42-5	盐酸乙脒 Acetamidine hydrochloride, 98%	25g, 100g, 500g
A44315	3287-99-8	苄胺盐酸盐 Benzylamine hydrochloride, 98%	25g, 100g, 500g
A44974	660-68-4	二乙胺盐酸盐 Diethylamine hydrochloride, 99%	100g, 500g, 1kg
A46484	557-66-4	乙胺盐酸盐 Ethylamine hydrochloride, 99%	100g, 500g
A42531	6313-33-3	甲脒盐酸盐 Formamidine hydrochloride, 98%	5g, 25g, 100g
A46390	50-01-1	盐酸胍 Guanidine hydrochloride, 98%	100g, 500g
A43842	15572-56-2	异丙胺盐酸盐 Isopropylamine hydrochloride, 98%	5g, 25g, 100g
A46556	593-51-1	甲胺盐酸盐 Methylamine hydrochloride, 98%	25g, 100g, 500g
A43767	142-64-3	哌嗪二盐酸盐单水合物 Piperazine dihydrochloride monohydrate, 98%	25g, 100g, 250g
A69909	146958-06-7	甲脒氢溴酸盐(四次重结晶) Formamidine hydrobromide, 99.5%	10g, 25g
A69877	2138-24-1	四己基碘化铵(四次重结晶) Hexylammonium iodide, 99.5%	10g, 25g
A69878	45497-73-2	苯基碘化铵(四次重结晶) Phenylammonium iodide, 99.5%	10g, 25g
A69923	53916-94-2	苯乙基溴化铵(四次重结晶) Phenethylammonium bromide, 99.5%	10g, 25g

电子传输层材料及其它

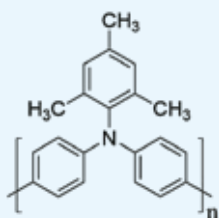
货号	CAS	产品描述	包装
A69327	4733-39-5	BCP, Sublimed, 99%	1g, 5g
A69739	99685-96-8	C60, 99.5%	1g, 5g
A69845	631918-72-4	C60-COOH-SAM, 99%	1g, 5g
A69740	1207461-57-1	ICBA, 99%	1g, 5g
A69738	172885-96-0	ICMA, 99%	1g, 5g
A69758	160848-22-6	PCBM, 99.5%	1g, 5g
A69982	115383-22-7	C70, 99%	1g, 5g
A69841	180777-24-6	C70-COOH, 99%	1g, 5g
A69778	1563175-93-8	IC70BA, 99%	1g, 5g

空穴传输层材料及掺杂剂

货号	CAS	产品描述	包装
A69820	1447938-61-5	FK209 Co(III) TFSI Salt, 99%	5g, 10g
A69828	1346416-70-3	FK102 Co(III) PF ₆ Salt, 99%	10g, 20g
A69872	1392221-69-0	FK102 Co(II) PF ₆ Salt, 99%	1g, 5g
A63629	1313-99-1	氧化镍(II) Nickel(II) oxide, 99.995% (metals basis)	25g, 100g
A63156	12068-85-8	硫化铁 Iron sulfide, 99%	10g, 50g
A63936	7681-65-4	碘化亚铜 Copper(I) iodide, 99.999% (metals basis)	5g, 25g, 100g

1333317-99-9

A69394 A69395



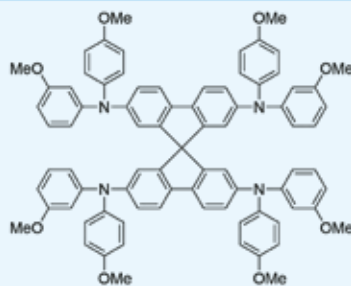
PTAA, Mw>10000

PTAA, Mw>20000

1g, 5g

1573202-44-4

A69833

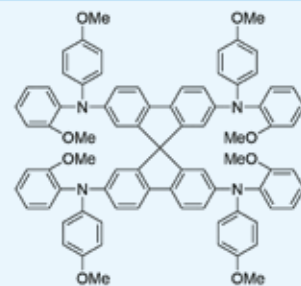


p,m-Spiro-MeOTAD, 99%

1g, 5g

1628961-22-7

A69834

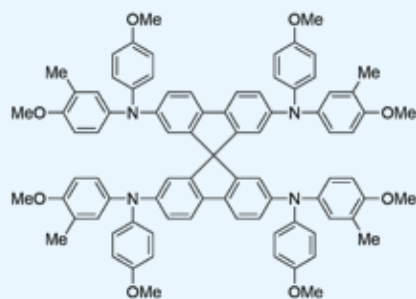


p,o-Spiro-MeOTAD, 98.5%

1g, 5g

1573202-31-9

A69849

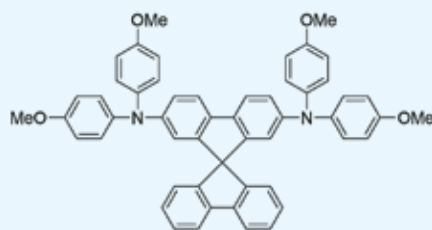


p-Me-Spiro-MeOTAD, 99%

1g, 5g

1138220-69-5

A69417

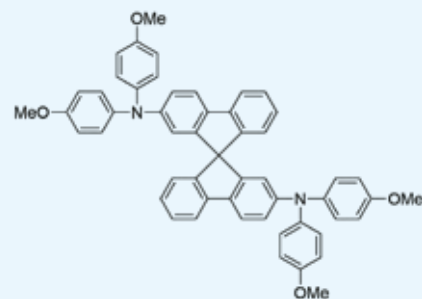


MeO-Spiro-TPD, Sublimed, 99%

1g, 5g

1174006-40-6

A69418



2,2'-MeO-Spiro-TPD, Sublimed, 99%

1g, 5g