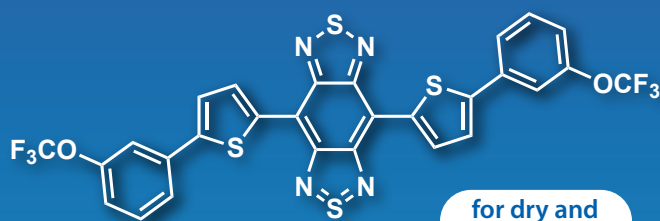


New

9.5 MATERIALS

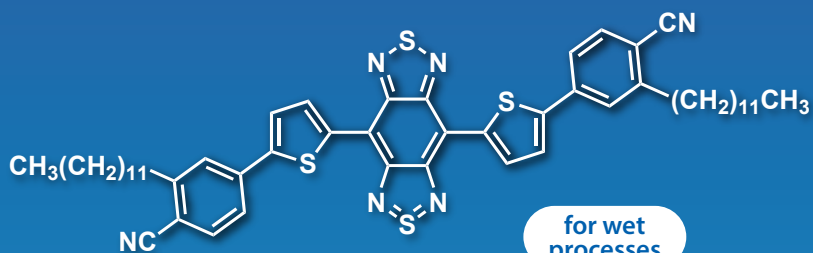


High Mobility n-Type Organic Semiconductors TU-1, TU-3



for dry and wet processes

TU-1 [T3922]
100mg / 250mg



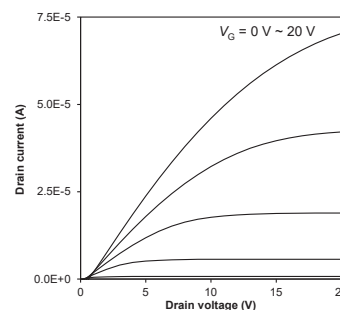
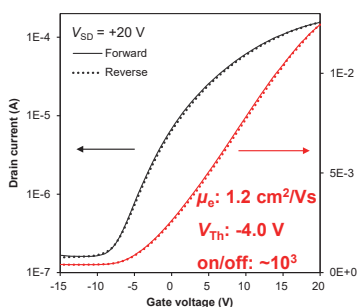
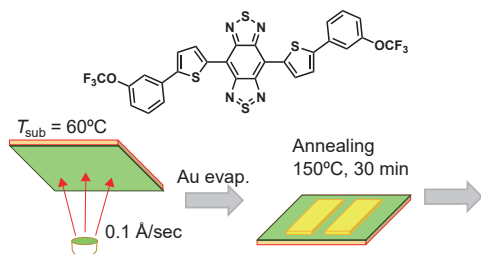
for wet processes

TU-3 [T3924]
100mg / 250mg

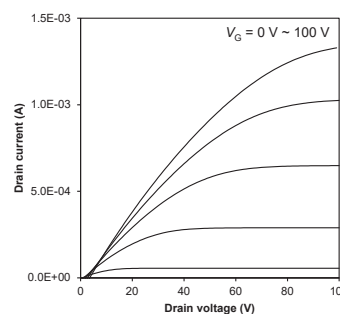
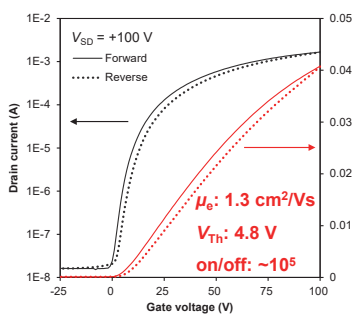
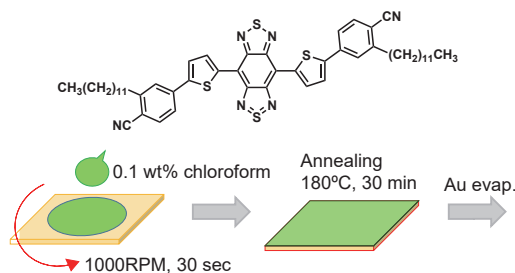
- Advantages**
- Electron mobility $>1 \text{ cm}^2/\text{Vs}$
 - Applicable to dry and/or wet processes

Performance evaluation of TU-1 and TU-3

TU-1 [T3922]-based device
(fabricated by vacuum deposition method)



TU-3 [T3924]-based device
(fabricated by spin coating method)



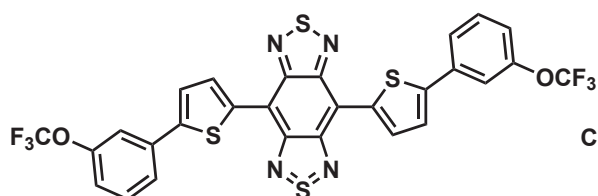
Previous research examples: 1) M. Mamada *et al.*, *Chem. Mater.* **2015**, 27, 141. 2) Y. Takeda *et al.*, *Sci. Rep.* **2016**, 6, 27450.

TCI has evaluated and ensured semiconductor performance of OFET devices using our in-house equipment.

TU-1 and TU-3 are commercialized with the cooperation and help from Future Ink Corporation.

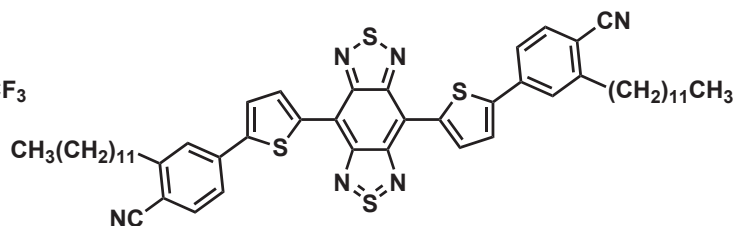
High Mobility n-Type Organic Semiconductors: TU-1, TU-3

Quality assurance by OFET mobility



TU-1 [T3922]

Electron mobility: $>0.50 \text{ cm}^2/\text{Vs}$ (specification)
(SiO_2 / ODTS substrate)



TU-3 [T3924]

Electron mobility: $>0.50 \text{ cm}^2/\text{Vs}$ (specification)
(SiO_2 / cPVP substrate)

OFET characteristics of the TU-1, TU-3-based devices

Compound	Insulator	$V_{SD}[\text{V}]$	$\mu_{avg}[\text{cm}^2/\text{Vs}]$	$\mu_{max}[\text{cm}^2/\text{Vs}]$	$V_{Th}[\text{V}]$	on/off
TU-1 (vacuum deposition)	SiO_2	20	0.31 (0.01)	0.33	6.5 (0.2)	$\sim 10^6$
	SiO_2	40	0.45 (0.01)	0.46	9.6 (0.1)	$\sim 10^7$
	SiO_2 / ODTS	20	0.88 (0.18)	1.18	-1.1 (2.6)	$\sim 10^3$
TU-3 (spin coating)	SiO_2	20	0.21 (0.03)	0.26	11.9 (0.4)	$\sim 10^5$
	SiO_2 / cPVP	20	0.51 (0.03)	0.55	5.0 (0.1)	$\sim 10^3$
	SiO_2 / cPVP	100	1.03 (0.14)	1.25	5.3 (1.3)	$\sim 10^5$

The values in parentheses are standard deviations., cPVP: cross-linked polyvinylphenol

TU-1 and TU-3 have product specifications for the electron mobilities ($>0.50 \text{ cm}^2/\text{Vs}$) on OFET devices.

Related products

High-quality p-type organic semiconductor

Ph-BTBT-10

100mg / 250mg [D5491]

Surface treatment agents

Octadecyltrichlorosilane (=ODTS) (>99.0%)

1g [T3815]

n-Octyltrichlorosilane (=OTS)

25g / 250g [O0168]

1,1,1,3,3,3-Hexamethyldisilazane (=HMDS)

25mL / 100mL / 500mL [H0089]

For further information please refer to our website at www.TCIchemicals.com.

organic semiconductor



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Fax : +49 (0)6196 64053-01
E-mail : Sales-DE@TCIchemicals.com

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Tel : +44 (0)1865 784560
Fax : +44 (0)1865 784561
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Tel : 1800 425 7889 / 044-2262 0909
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Tel : 800-988-0390 / 021-67121386
Fax : 021-6712-1385
E-mail : Sales-CN@TCIchemicals.com

TOKYO CHEMICAL INDUSTRY CO., LTD.

Tel : +81 (0)3-5640-8878
Fax : +81 (0)3-5640-8902
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