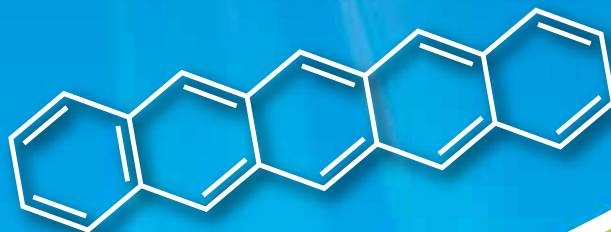


# Chemical Compounds Purified by Sublimation



# Chemical Compounds Purified by Sublimation

Reagent purity is paramount in countless applications, and is of particular importance when involving electronic materials including polyaromatic hydrocarbons. Pentacene (P0030, P2524) and *N,N'*-diphenyl-*N,N'*-di(*m*-tolyl)-benzidine (D3236) in particular have garnered increased interest for their applications in organic semiconducting materials. The purification of organic compounds is almost entirely conducted via column chromatography or recrystallization. These mainstay procedures are highly effective, but are limited to compounds soluble in organic solvents. Many

electronic materials including PAHs due to their extensive  $\pi$  conjugation and aromaticity are poorly or completely insoluble in organic solvents. Fortunately, this very  $\pi$  conjugation lends to both high volatility with a relatively high sublimation temperature leading to sublimation purification being a highly effective purification avenue.

To address research and industry demands, TCI has introduced several electronic materials purified by sublimation which can be readily and reliably used in a variety of research applications.

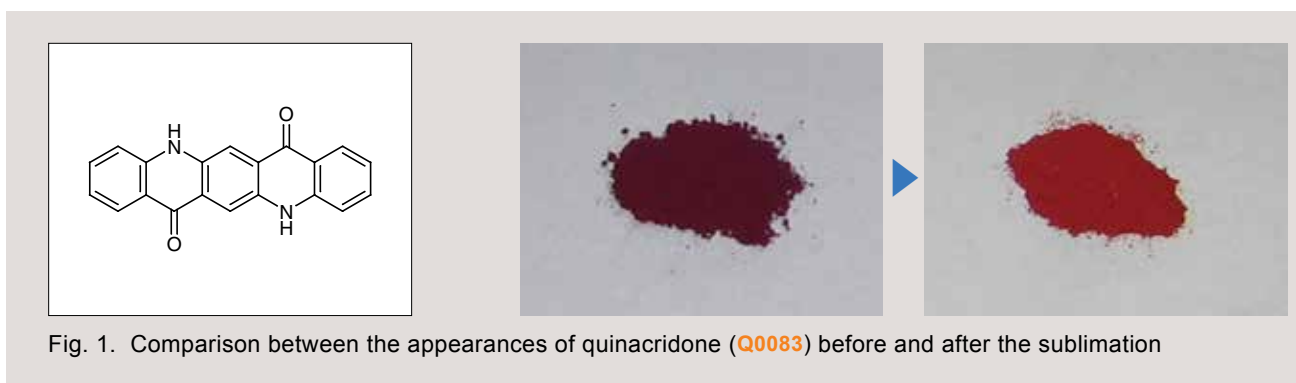


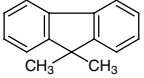
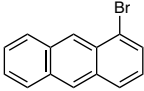

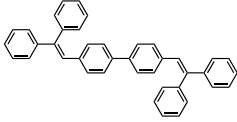
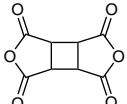
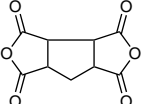
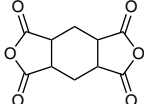
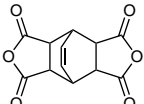
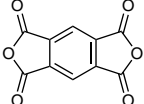
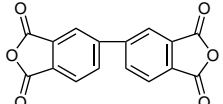
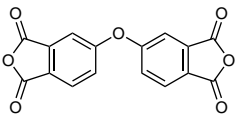
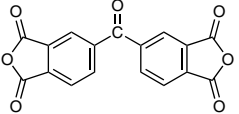
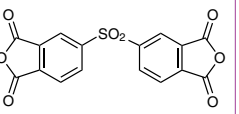
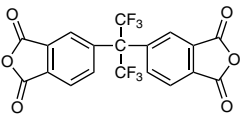
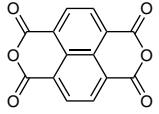
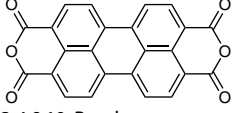
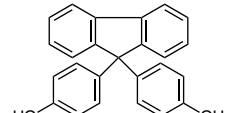
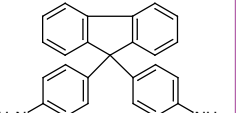
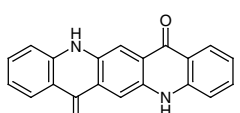
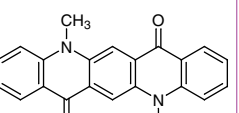
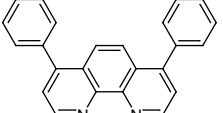
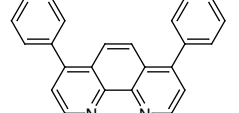
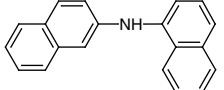
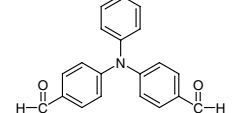
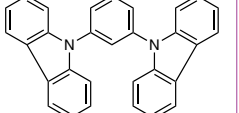
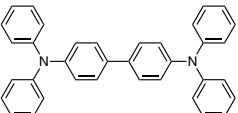
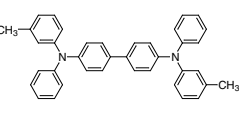
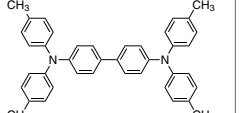
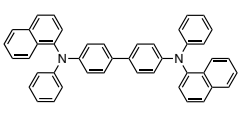
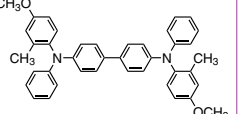
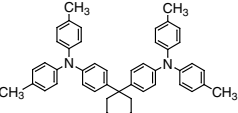
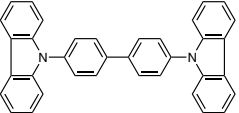
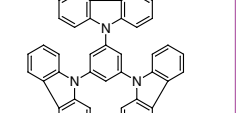
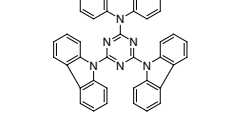
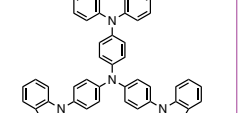
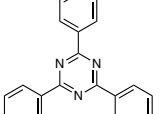
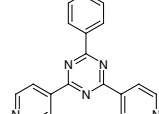
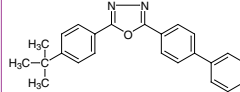
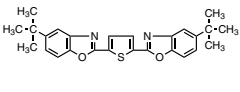
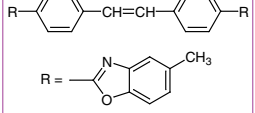
Fig. 1. Comparison between the appearances of quinacridone (Q0083) before and after the sublimation

The visual comparison of pre (dark purple) and post (red) sublimated quinacridone (Q0083) highlights the purity and quality improvement from sublimation purification.

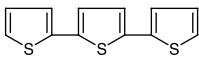
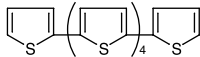
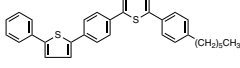
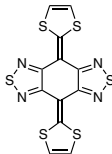
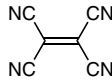
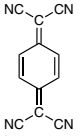
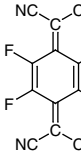
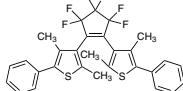
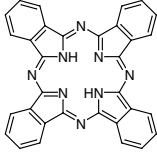
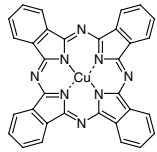

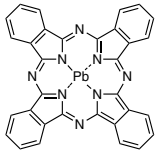
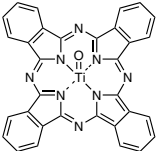
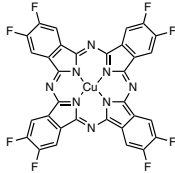
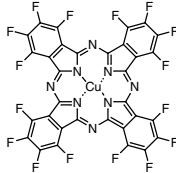
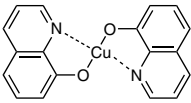
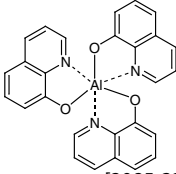
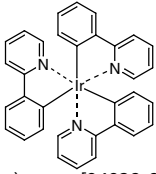
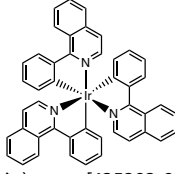

Additional sublimation purified electronic materials are shown below.

<b>T3267</b> 200mg 1g  Triphenylene [217-59-4]	<b>N0951</b> 200mg 1g  Naphthacene [92-24-0]	<b>C0339</b> 100mg 1g  Benzo[a]phenanthrene [218-01-9]	<b>P2072</b> 1g  Pyrene [129-00-0]	<b>P0030</b> 100m 1g  Pentacene [135-48-8]
<b>P2524</b> 100mg 1g  Pentacene (99.999%, trace metals basis) [135-48-8]	<b>P2207</b> 100mg  Picene (>99.9%) [213-46-7]	<b>B0085</b> 100mg 1g  3,4-Benzopyrene [50-32-8]	<b>P1629</b> 1g  Perylene [198-55-0]	<b>C1961</b> 100mg  Coronene [191-07-1]
<b>T2655</b> 100mg  4,5,9,10-Tetrahydropyrene [781-17-9]	<b>D4401</b> 1g  9,10-Diphenylanthracene [1499-10-1]	<b>D5065</b> 1g  9,10-Di(1-naphthyl)anthracene [26979-27-1]	<b>D5066</b> 200mg  9,10-Di(2-naphthyl)anthracene [122648-99-1]	<b>T2233</b> 250mg 1g  Rubrene [517-51-1]

## Chemical Compounds Purified by Sublimation

<b>D3810</b> 1g  9,9-Dimethylfluorene [4569-45-3]	<b>B3475</b> 1g  1-Bromoanthracene [7397-92-4]	<b>T3263</b> 5g 25g  <i>p</i> -Terphenyl [92-94-4]	<b>B5139</b> 200mg 1g  DPVBi [142289-08-5]	<b>C2842</b> 1g 5g  1,2,3,4-Cyclobutane-tetracarboxylic Dianhydride [4415-87-6]
<b>C2920</b> 1g 5g  1,2,3,4-Cyclopentane-tetracarboxylic Dianhydride [6053-68-5]	<b>C2919</b> 1g 5g  1,2,4,5-Cyclohexane-tetracarboxylic Dianhydride [2754-41-8]	<b>B4261</b> 5g 25g  Bicyclo[2.2.2]oct-7-ene-2,3,5,6-tetracarboxylic Dianhydride [1719-83-1]	<b>P2103</b> 5g 25g  Pyromellitic Dianhydride [89-32-7]	<b>B4262</b> 5g  4,4'-Bipthalic Anhydride [2420-87-3]
<b>O0423</b> 5g  4,4'-Oxydiphthalic Anhydride [1823-59-2]	<b>B4260</b> 5g 25g  4,4'-Carbonyldiphthalic Anhydride [2421-28-5]	<b>D4554</b> 1g 5g  3,3',4,4'-Diphenylsulfone-tetracarboxylic Dianhydride [2540-99-0]	<b>H1438</b> 1g 5g  4,4'-(Hexafluoroisopropylidene)-diphthalic Anhydride [1107-00-2]	<b>N0755</b> 1g 5g  NTCDA [81-30-1]
<b>P2102</b> 1g  3,4,9,10-Perylene-tetracarboxylic Dianhydride [128-69-8]	<b>B4834</b> 1g 5g  9,9-Bis(4-hydroxyphenyl)-fluorene [3236-71-3]	<b>B2654</b> 1g  9,9-Bis(4-aminophenyl)-fluorene [15499-84-0]	<b>Q0083</b> 1g  Quinacridone [1047-16-1]	<b>D3227</b> 1g  DMQA [19205-19-7]
<b>B2695</b> 1g  Bathophenanthroline [1662-01-7]	<b>B2694</b> 1g 5g  Bathocuproine [4733-39-5]	<b>D2988</b> 1g 5g  1,2'-Dinaphthylamine [4669-06-1]	<b>B2843</b> 1g  Bis(4-formylphenyl)-phenylamine [53566-95-3]	<b>D4087</b> 1g  1,3-Di-9-carbazolylbenzene [550378-78-4]
<b>T3266</b> 1g 5g  TPB [15546-43-7]	<b>D3236</b> 1g 5g  TPD [65181-78-4]	<b>T3265</b> 1g  <i>N,N,N',N'</i> -Tetrakis( <i>p</i> -tolyl)-benzidine [76185-65-4]	<b>D3970</b> 1g 5g  <i>N,N'</i> -Di-1-naphthyl- <i>N,N'</i> -diphenylbenzidine [123847-85-8]	<b>B5140</b> 1g 5g  <i>N,N'</i> -Bis(4-methoxy-2-methylphenyl)- <i>N,N'</i> -diphenylbenzidine [169685-34-1]
<b>B3146</b> 1g  TAPC [58473-78-2]	<b>B4219</b> 1g  CBP [58328-31-7]	<b>T1934</b> 1g 5g  1,3,5-Tri(9 <i>H</i> -carbazol-9-yl)-benzene [148044-07-9]	<b>T2700</b> 1g 5g  2,4,6-Tri(9 <i>H</i> -carbazol-9-yl)-1,3,5-triazine [134984-37-5]	<b>T2274</b> 200mg 1g  TCTA [139092-78-7]
<b>T3268</b> 1g  2,4,6-Triphenyl-1,3,5-triazine [493-77-6]	<b>T1937</b> 1g 5g  2,4,6-Tri(4-pyridyl)-1,3,5-triazine [42333-78-8]	<b>B2696</b> 1g 5g  PBD [15082-28-7]	<b>B4221</b> 1g 5g  2,5-Bis(5- <i>tert</i> -butyl-2-benzoxazolyl)thiophene [7128-64-5]	<b>B2676</b> 1g  4,4'-Bis(5-methyl-2-benzoxazolyl)stilbene [2397-00-4]

## Chemical Compounds Purified by Sublimation

<b>T1196</b> 1g 5g  2,2':5,2''-Terthiophene [1081-34-1]	<b>S0504</b> 100mg 1g  6T [88493-55-4]	<b>H1448</b> 50mg  AC5-Hx [1172135-81-7]	<b>B3612</b> 100mg  BTQBT [135704-54-0]	<b>T3264</b> 1g 5g  Tetracyanoethylene [670-54-2]
<b>T3034</b> 1g 5g  7,7,8,8-Tetracyanoquinodimethane [1518-16-7]	<b>T1131</b> 100mg 1g  TCNQF <sub>4</sub> [29261-33-4]	<b>B5604</b> 100mg  1,2-Bis(2,4-dimethyl-5-phenyl-3-thienyl)-3,3,4,4,5,5-hexafluoro-1-cyclopentene [172612-67-8]	<b>P1795</b> 1g  Phthalocyanine [574-93-6]	<b>P1628</b> 1g  CuPc [147-14-8]
<b>I0783</b> 200mg 1g  Iron(II) Phthalocyanine [132-16-1]	<b>L0230</b> 200mg 1g  Lead(II) Phthalocyanine [15187-16-3]	<b>T2272</b> 200mg 1g  TiOPc [26201-32-1]	<b>C2427</b> 100mg 1g  F <sub>8</sub> CuPc [148651-60-9]	<b>H1194</b> 100mg 1g  F <sub>16</sub> CuPc [14916-87-1]
<b>B3834</b> 1g  Bis(8-quinolinolato)-copper(II) [10380-28-6]	<b>T2238</b> 5g  Alq <sub>3</sub> [2085-33-8]	<b>T1946</b> 200mg  Ir(ppy) <sub>3</sub> [94928-86-6]	<b>T2685</b> 100mg  Ir(piq) <sub>3</sub> [435293-93-9]	<b>L0291</b> 1g 5g  Lead(II) Chloride [7758-95-4]

## Service of Sublimation Purification

If you need a product purified by sublimation, which is not listed in this leaflet, please consult TCI about its synthesis and sublimation capabilities.

Please consult TCI if you wish your product to be purified by sublimation.

## Benefits of TCI

- Consistent handling of the whole process, from custom synthesis production to sublimation purification
- In possession of an extensive range of unique sublimation apparatus
  - Possible to purify various compounds by sublimation
  - Purification capacity range from milligrams to kilograms
- Capable to analyze residual metals
- Possibility to handle and pack the compounds under low moisture or low oxygen atmosphere

## Please contact TCI with your request!

When sending your request, please provide the following information:

- Product information  
(Name of compound, Structure formula, Physical data, Literature information, etc.)
- Required quantity
- Requested delivery time
- Necessity of a confidentiality agreement  
(TCI always makes assurance of confidentiality in all its business matters. But if an additional contract is needed, please don't hesitate to ask.)
- Possibility to supply the raw material  
(TCI can also start from the production of the raw material)
- Test items after sublimation
- Requested package

## Quotation

- \* TCI will submit a quotation based on your request.
- \* If you do not have any information about the compound, we will request you for a sample of the compound for verification.  
(In some cases, sublimation might become difficult)

## Order

## Delivery of the product

## Ordering and Customer Service

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