

Iodidomesityltellurium(II) iodido-  
trimesitylditellurium(II) (Te—Te)Lucian Copolovici,<sup>a\*</sup> Cristian Silvestru,<sup>a</sup> Vito Lippolis<sup>b</sup> and  
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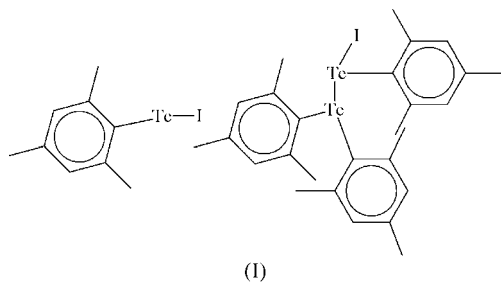
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In the title compound,  $C_9H_{11}ITe \cdot C_{27}H_{33}ITe_2$  or  $(Mes)TeI \cdot (Mes_2Te)TeI(Mes)$  (Mes is mesityl or 2,4,6-trimethylphenyl), a strong  $Te \cdots I$  interaction of 3.3157 (9) Å links the Te atom of an iodidomesityltellurium(II) moiety,  $(Mes)TeI$ , and an I atom of the iodidotrimesitylditellurium(II) unit,  $(Mes_2Te)TeI(Mes)$ . Further weak  $Te \cdots I$  contacts of 4.0818 (9) Å give rise to one-dimensional chains along the *b* axis in the crystal structure. An intramolecular  $C-H \cdots \pi(\text{arene})$  interaction is present in the  $(TeMes_2)TeI(Mes)$  moiety, with a  $C \cdots Cg$  distance of 3.497 (9) Å and a  $C-H \cdots Cg$  angle of 142° (where *Cg* is the centroid of a mesityl ring of the  $Mes_2Te$  moiety).

## Comment

Organyltellurenyl halides ( $RTeHal$ , where Hal is Cl, Br or I) are recognized as very unstable compounds which can easily undergo dismutation and disproportionation reactions. Stabilization of these species can be achieved by introducing either bulky substituents at the *R* moiety or additional coordinating donor groups in the system. In this way, several 2,4,6- $R'_3C_6H_2TeHal$  systems have been synthesized and structurally



characterized, as well as donor-stabilized organyltellurenyl halides (Lang *et al.*, 2006; de Oliveira *et al.*, 2006; Du Mont *et al.*, 1988; Klapötke *et al.*, 2005; Beckmann & Hesse, 2007; Beckmann *et al.*, 2007). On reacting bis(2,4,6-trimethylphenyl)ditellane  $(MesTe)_2$  with one equivalent of  $I_2$  in

$CH_2Cl_2$ , followed by removal of the solvent *in vacuo* and recrystallization from *n*-hexane, we obtained single crystals of the title compound,  $(Mes)TeI \cdot [(Mes_2Te)TeI(Mes)]$  (where Mes is 2,4,6-trimethylphenyl), (I) (Fig. 1).

The asymmetric unit of (I) features a pseudohalide mesityltellurenyl monoiodide ( $MesTeI$ ) and a (dimesityltelluride)(iodido)(mesityl)tellurium(II)  $[(Mes)ITe(TeMes_2)]$  moiety linked by a 'soft-soft'  $Te3 \cdots I1^i$  charge-transfer interaction of 3.3157 (9) Å [symmetry code: (i)  $-x, -\frac{1}{2} + y, \frac{1}{2} - z$ ] (Table 1). In the  $(Mes)TeI$  fragment, the I atom is almost perpendicular to the plane containing the aromatic ring and the Te atom [ $C28-Te2-I2 = 94.5 (2)^\circ$ ], as also observed in 2,4,6- $tBu_3C_6H_2TeBr$  [93.61 (5)°; Beckmann & Hesse, 2007], 2,4,6- $tBu_3C_6H_2TeCl$  [93.40 (9)°; Beckmann *et al.*, 2007] and 2,4,6- $tBu_3C_6H_2TeI$  [95.75 (8)°; Klapötke *et al.*, 2005]. According to Ledesma *et al.* (2004), the  $(Mes)ITe(TeMes_2)$  moiety can be considered as formed by an  $(Mes)TeI$  unit stabilized by a dimesityltelluride ligand ( $Mes_2Te$ ) via a  $Te1-Te2$  secondary soft-soft interaction of 3.0609 (8) Å. The three-centre  $Te1-Te2-I1$  system is approximately linear [171.90 (3)°], suggesting charge transfer from  $Mes_2Te$  to  $(Mes)TeI$ , which could explain the longer  $Te2-I1$  distance [2.9621 (9) Å] compared with  $Te3-I2$  [2.7840 (10) Å]. The geometry about atom  $Te2$  can be considered as a distorted T shape, whereas the coordination geometry around atom  $Te1$  can be described as a distorted tetrahedron with a vacant coordination site (Ledesma *et al.*, 2004).

An intramolecular  $C-H \cdots \pi(\text{arene})$  interaction is present in the  $[(Mes_2Te)TeI(Mes)]$  moiety, with a  $C7 \cdots Cg1$  distance of 3.497 (9) Å and a  $C7-H7A \cdots Cg1$  angle of 142° (where *Cg1* is the centroid of the  $C10-C15$  mesityl ring) (Table 2), together with a reciprocal  $C18 \cdots Cg2$  interaction, with an interplanar  $Cg1 \cdots Cg2$  separation of 3.39 Å (*Cg2* is the centroid of the  $C1-C6$  ring).

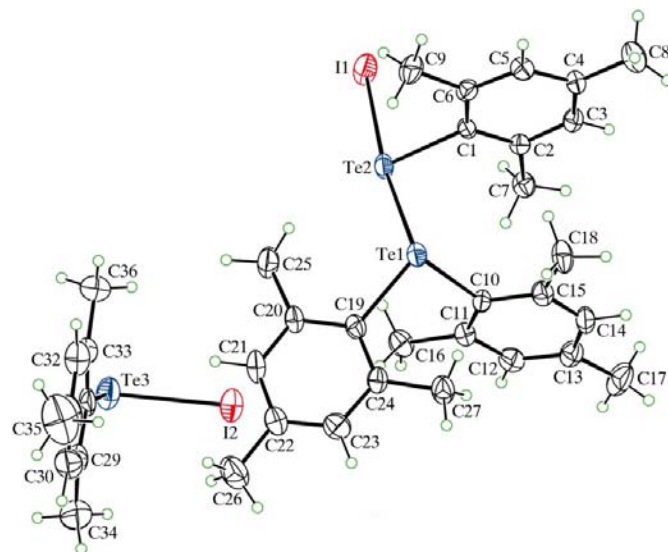
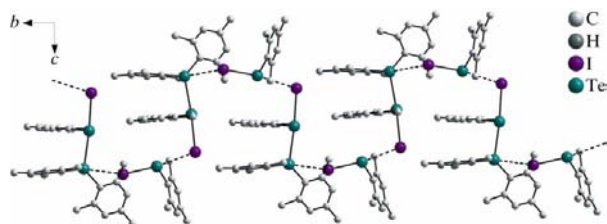


Figure 1

A view of compound (I), showing the atom-numbering scheme and 30% probability displacement ellipsoids. H atoms are shown as small spheres of arbitrary radii.

A further soft–soft weak  $\text{Te1}\cdots\text{I2}^{\text{ii}}$  interaction of 4.0818 (9) Å [symmetry code: (ii)  $-1 + x, y, z$ ] gives rise to zigzag polymers which run along the  $b$  axis in the crystal structure (Fig. 2). Overall, compound (I) can be described as mesityltellurenyl monoiodide (MesTeI) units bridging the (dimesityltelluride)(iodido)(mesityl)tellurium(II) [(Mes)ITe(TeMes<sub>2</sub>)] units in a head-to-tail fashion *via*  $\text{Te}\cdots\text{I}$  soft–soft interactions.



**Figure 2**

A view of the one-dimensional supramolecular motif, showing the  $\text{Te}\cdots\text{I}$  interactions (indicated as dashed lines). H atoms have been omitted for clarity.

## Experimental

Bis(2,4,6-trimethylphenyl)ditellane ( $\text{MesTe}_2$ ) (0.184 mmol) and iodine (0.184 mmol) were dissolved in dichloromethane (15 ml) (Du Mont *et al.*, 1988). After stirring for 30 min, the green solution was evaporated *in vacuo*. Recrystallization from *n*-hexane yielded dark-red needles of the title compound, (I).

### Crystal data

$\text{C}_9\text{H}_{11}\text{ITe}\cdot\text{C}_{27}\text{H}_{33}\text{ITe}_2$	$V = 3822.3$ (4) Å <sup>3</sup>
$M_r = 1113.31$	$Z = 4$
Monoclinic, $P2_1/c$	Mo $K\alpha$ radiation
$a = 8.1491$ (5) Å	$\mu = 3.91$ mm <sup>-1</sup>
$b = 15.9071$ (10) Å	$T = 297$ (2) K
$c = 29.495$ (2) Å	$0.28 \times 0.22 \times 0.19$ mm
$\beta = 91.3790$ (10)°	

### Data collection

Bruker SMART CCD area-detector diffractometer	27296 measured reflections
Absorption correction: multi-scan (SHELXTL; Bruker, 2001)	6720 independent reflections
$T_{\min} = 0.37$ , $T_{\max} = 0.476$	5651 reflections with $I > 2\sigma(I)$
	$R_{\text{int}} = 0.056$

### Refinement

$R[F^2 > 2\sigma(F^2)] = 0.060$	382 parameters
$wR(F^2) = 0.127$	H-atom parameters constrained
$S = 1.23$	$\Delta\rho_{\text{max}} = 1.24$ e Å <sup>-3</sup>
6720 reflections	$\Delta\rho_{\text{min}} = -0.57$ e Å <sup>-3</sup>

All H atoms were placed in calculated positions using a riding model, with  $\text{C}-\text{H} = 0.93\text{--}0.97$  Å and  $U_{\text{iso}}(\text{H}) = 1.5U_{\text{eq}}(\text{C})$  for methyl or  $1.2U_{\text{eq}}(\text{C})$  for aryl H atoms. The methyl groups were allowed to rotate but not to tip.

Data collection: SMART (Bruker, 2000); cell refinement: SMART; data reduction: SAINT-Plus (Bruker, 2000); program(s) used to solve structure: SHELXTL (Bruker, 2001); program(s) used to refine

**Table 1**

Selected geometric parameters (Å, °).

I1—Te2	2.9621 (9)	Te1—Te2	3.0609 (8)
I2—Te3	2.7840 (10)		
C19—Te1—Te2	116.7 (2)	C1—Te2—Te1	79.9 (2)
C10—Te1—Te2	94.0 (2)	I1—Te2—Te1	171.90 (3)
C1—Te2—I1	92.3 (2)	C28—Te3—I2	94.5 (2)
C19—Te1—Te2—C1	−179.6 (3)	C33—C28—Te3—I2	88.2 (7)

**Table 2**

Hydrogen-bond geometry (Å, °).

$Cg1$  and  $Cg2$  are the centroids of aromatic rings C10–C15 and C1–C6, respectively.

$D-H\cdots A$	$D-H$	$H\cdots A$	$D\cdots A$	$D-H\cdots A$
C7—H7A $\cdots$ Cg1	0.96	2.69	3.497 (9)	142
C18—H18C $\cdots$ Cg2	0.96	2.89	3.788 (10)	156

structure: SHELXTL (Bruker, 2001); molecular graphics: ORTEP-3 (Farrugia, 1997), DIAMOND (Brandenburg, 2006) and PLATON (Spek, 2003); software used to prepare material for publication: publCIF (Westrip, 2007).

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Supplementary data for this paper are available from the IUCr electronic archives (Reference: GG3108). Services for accessing these data are described at the back of the journal.

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