

二代树状碳硅烷液晶研究I.端基含36个丁氧基偶氮苯介晶基元

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**摘要** 用发散法合成周边含36个丁氧基偶氮苯介晶基元(M5)端基新的二代树状碳硅烷液晶(D<sub>2</sub>),并用元素分析,氢谱,激光质谱,红外,紫外,偏光显微镜,DSC和WAXD法表征D<sub>2</sub>为向列相,与M5相同,二代树状物相态由介晶基定.D<sub>2</sub>液晶态相行为是K85N107I103N69K,其熔点比M5降低27-41℃,清亮点比M5降低17-18宽10-23℃.二代碳硅烷(D<sub>2</sub>)与一代碳硅烷(D<sub>1</sub>)相比熔点增加2-3℃,清亮点降低26-29℃,液晶态温区减少℃.在二代树状物中观察到S=+3/2的高强向错.

**关键词** [碳硅烷](#) [液晶](#) [苯偶氮化合物](#) [元素分析](#) [红外分光光度法](#) [紫外分光光度法](#)

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## Study on a Carbosilane Liquid Crystalline Dendrimer of the Second Generation I. Containing Thirty-six 4-Butoxyazobenzene Groups in Its Periphery

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**Abstract** The divergent synthesis of a new carbosilane liquid crystalline (LC) dendrimer (D<sub>2</sub>) of the second generation is described. Thirty six 4- butoxyazobenzene groups (MS) are used as mesogenic fragments and attached in its periphery. Structure and properties of D<sub>2</sub> were characterized by elemental analysis, <sup>1</sup>H NMR, MALDI-TOF-MS, IR, UV, polarizing optical micrograph, DSC and WAXD. Similar to MS, D<sub>2</sub> is a nematic liquid crystal. The mesomorphic state of the dendrimer of second generation (D<sub>2</sub>) depends on that of mesogenic units. Phase behavior of D<sub>2</sub> in LC state is K85N107I103N69K. The melting point of D<sub>2</sub> is 27-41℃ less than that of MS, the clearing point of D<sub>2</sub> is 17-18℃; less than that of MS and the mesophase region of D<sub>2</sub> is 10-23℃ greater than that of MS. The melting point of D<sub>2</sub> is 2-3℃ greater than that of D<sub>1</sub>, the clearing point of D<sub>2</sub> is 26-29℃ less than that of D<sub>1</sub> and the mesophase region is 29-31℃ less than that of D<sub>1</sub>. Six extinguished brushes emanating from a stationary point were observed, corresponding to the high-strength disclination of S = + 3/2 of dendrimer D<sub>2</sub>.

**Key words** [carbosilane](#) [LIQUID CRYSTAL](#) [BENZENE AZO COMPOUNDS](#) [ELEMENTAL ANALYSIS](#) [IR](#) [UV](#)

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