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United States Patent [19][11] **Patent Number:** **5,876,630****Vinograd et al.**[45] **Date of Patent:** **Mar. 2, 1999**[54] **SCINTILLATION MATERIAL ON THE BASE OF CESIUM IODIDE AND METHOD FOR ITS PREPARATION**[75] Inventors: **Eduard L'Vovich Vinograd; Valentin Ivanovich Goriletsky; Ludmila Vasil'evna Kovaleva; Sofiya Petrovna Korsunova; Alexandr Mihailovich Kudin; Anatolii Ivanovich Mitichkin; Alexandra Nikolaevna Panova; Vladimir Grigor'evich Protsenko; Klavdia Viktorovna Shakhova; Larisa Nikolaevna Shpilinskaya**, all of Kharkov, Ukraine[73] Assignee: **Amcryst-H**, Kharkov, Ukraine[21] Appl. No.: **854,410**[22] Filed: **May 12, 1997**[30] **Foreign Application Priority Data**

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[51] **Int. Cl.⁶** **C09K 11/61**[52] **U.S. Cl.** **252/301.4 H; 252/301.17; 117/940**[58] **Field of Search** **252/301.4 H, 301.17; 117/940**[56] **References Cited****U.S. PATENT DOCUMENTS**

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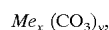
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A cesium iodide based scintillation material is obtained exhibiting a low afterglow and high radiation hardness; its preparation method is developed, too.

The cesium iodide based scintillation material doped by thallium iodide contains an additional admixture of compound having the general formula



where Me is a cationic admixture,

$$1 \leq x \leq 2,$$

$$1 \leq y \leq 5,$$

This material has in its absorption spectrum a stretching vibration band of CO_3^{2-} -ion about $7 \mu m$ and a bending vibration band about $11.4 \mu m$, the absorption coefficient of the latter being from $1.4 \cdot 10^{-3}$ to $2 \cdot 10^{-2} cm^{-1}$.Preparation method of this scintillation material comprises the raw material cesium iodide melting, adding of the activating thallium iodide dope, introduction of cesium carbonate ($3 \cdot 10^{-4}$ to $5 \cdot 10^{-3} \%$ by mass) and a sodium salt ($3 \cdot 10^{-4}$ to $7.5 \cdot 10^{-3} \%$ of Na by mass) into said raw material and/or the melt and a subsequent crystallization.**7 Claims, No Drawings**