

# The role of antimony oxide in solar glass





## Overview

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Does solar glass contain antimony?

However, the composition of solar glass varies, especially concerning antimony (Sb) content, depending on the production method. Antimony is used to enhance the performance of patterned solar glass but introduces environmental and health concerns, complicating recycling efforts.

What is antimony oxide?

Antimony oxide is a conditional glass former and simple binary  $\text{SiO}_2\text{-Sb}_2\text{O}_3$  [22, 23],  $\text{B}_2\text{O}_3\text{-Sb}_2\text{O}_3$  [24, 25] and  $\text{P}_2\text{O}_5\text{-Sb}_2\text{O}_3$  glasses, and more complex glasses [11, 13, , , , ], have all been studied to gain new and fundamental composition-structure-property understanding.

Can antimony be incorporated in oxide glasses?

Antimony has been incorporated in oxide glasses and some antimony phosphate glasses have been reported , , , .

How does antimony decolourise glass?

Antimony decolourises such glasses by oxidising  $\text{Fe}^{2+}$  to  $\text{Fe}^{3+}$  through mutual redox interactions during glass melting and cooling [5, , , , 15, 20, 21], whereby:  $(3)\text{Sb}^{5+} + 2\text{Fe}^{2+} \rightarrow \text{Sb}^{3+} + 2\text{Fe}^{3+}$  In addition to the study of antimony as a refining and decolourising agent, other effects of antimony in oxide glass have also received attention.



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### [Unique Properties of Antimony Glass](#)

Dec 3, 2025 · Antimony glass, a type of glass that incorporates antimony oxide ( $\text{Sb}_2\text{O}_3$ ) as a key ingredient, has been used for centuries in various applications, from ancient artifacts to more ...

### **Release: ESIA Recommendation Paper Addressing uncertain antimony**

Oct 6, 2023 · However, the composition of solar glass varies, especially concerning antimony (Sb) content, depending on the production method. Antimony is used to enhance the performance ...



### **Addressing uncertain antimony content in solar glass for ...**

Nov 7, 2023 · Glass accounts for a significant proportion of PV module weight, making glass recycling an environmentally beneficial process due to reduced CO<sub>2</sub> emissions and energy ...

### **Physicochemical Properties of Antimony-containing Photovoltaic (PV) Glass**

The proposed PhD thesis is part of the ANR GRISBI project (2026-2030), which aims to optimize the recycling of glass from photovoltaic (PV) panels. These glasses, predominantly ...



[\(PDF\) Antimony Oxide Based Glasses](#)

May 1, 2001 · PDF , Glass formation has been investigated in binary systems based on antimony oxide as the main glass former: ...



**Composition-structure-property effects of antimony in soda ...**

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[Concept Note/ Blue Print on Management of Antimony ...](#)

Jul 11, 2022 · 2. Antimony Containing Solar PV Panels Antimony is used in solar panel glass to improve stability of the solar performance of the glass upon exposure to ultraviolet radiation ...





### [Full solar spectrum optical and photothermal ...](#)

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May 1, 2001 · While glass formation in oxide systems commonly requires oxides of silicium, germanium, boron and phosphorous as vitrifying cations, glasses based on oxides of larger ...

### [\(PDF\) Antimony Oxide Based Glasses](#)

May 1, 2001 · PDF , Glass formation has been investigated in binary systems based on antimony oxide as the main glass former:  $(100-x)\text{Sb}_2\text{O}_3-x\text{WO}_3$ , (5 , Find, read and cite all the research ...



### [Antimony Doped Tin Oxide Infrared Shielding Films for](#)

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Oct 6, 2023 · However, the composition of solar glass varies, especially concerning antimony (Sb) content, depending on the production method. ...



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