



# Decol 100™

High purity cerium oxide glass  
decolouriser and refiner

## Technical Background

**Impurities such as residual iron in glass raw materials can affect the colour of the glass. There are two methods available to correct for this colour contamination.**

The use of a physical decolouriser, such as selenium, cobalt, chrome and manganese can be used to counter-act this colour contamination by the production of their own and equally opposite colours. Whilst this then produces a clear glass, a dirty or grey texture can result.

Iron in its ferrous ( $\text{Fe}_{2+}$ ) state produces a blue colour. In its ferric ( $\text{Fe}_{3+}$ ) state, a yellow-green colour is produced that is 10 times

less intense. This oxidation of the impurity (iron) is known as chemical decolourisation. By using a two step process of both chemical and physical decolourisation the texture of the final glass is much cleaner.

By using Decol 100™, toxic additions of arsenic (As) and antimony (Sb) are eliminated and additions of selenium and cobalt are much reduced. Additionally, both As and Sb are known to vanquish the complementary colour introduced by selenium. Decol 100™ does not have any negative affect on selenium.

### Benefits of Decol 100™:

- Extremely cost effective
- Allows cheaper silica sand to be used
- Eliminates the need for arsenic and antimony
- Safe to handle and use
- Reduces additions of physical decolourisers such as selenium and cobalt
- Significantly reduces additions of sodium nitrate/sulphate
- Low level of impurities for higher quality glass
- Stable across a wider range of temperatures and furnace atmospheres
- Refines the glass melt, reducing bubbles and striations
- Better glass batch to batch consistency

### Typical Analysis:

TREO	99% min
$\text{CeO}_2$ /TREO	99% min
Other REO/TREO	1% max
$\text{Fe}_2\text{O}_3$	0.05% max
$\text{Na}_2\text{O}$	0.35% max
MgO	0.22% max
$\text{SiO}_2$	0.17% max

TREO: Total Rare Earth Oxides



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## TV Tube Manufacture

Decol 100™ acts as a refining agent in the manufacturing process, helping bubbles to clear and increasing the rate at which the melt becomes homogenous.

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### Trail Procedure

**Step 1:** Make an addition of 500g of Decol 100™ to the melt per 1,000kg of sand and increase additions of Decol 100 to achieve the desired quality. (Note: Do not add any arsenic. If arsenic is already contained in cullet then the Ce:As ratio must be greater than 3:1 else solarisation is likely).

**Step 2:** Reduce; Selenium by 10% and cobalt by 50%. Repeat, until over decolourisation has been compensated. Make fine adjustments until the desired quality is achieved.

**Step 3:** Reduce; Sodium nitrate/sulphate contents by 20%. Repeat, until the refinement deteriorates and then make fine adjustments until the desired refinement is achieved.

**Step 4:** Reduce Decol 100™ additions by 10%. Repeat until the quality deteriorates. Then make fine adjustments until the desired quality is achieved.

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### Size & Packaging

Supplied in 25kg lined, woven sacks, shrink-wrapped on 1,000kg wooden pallets.

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These products are manufactured in accordance with a Quality Assurance system which meets the standards of ISO9001.

The technical data in this sheet is given for information purposes only and does not constitute part of any specification.