



Glassomite
ADD VALUE to your GLASS

Eco Clay Solutions Pvt. Ltd.

Glassomite Slag & Other
Glass Raw Materials





Eco Clay Solutions Pvt. Ltd.



Introduction	1
Glassomite Process & Advantages	2
Decarbonisation of Glass Melting Process	3
Asset Preservation	6
Other Glass Raw Materials	7
Technical Support	8

www.glassomite.com

glassomite@gmail.com



+91 9822402481 / +91 9834330322

What is Glassomite

Glassomite is an eco-friendly alumina rich source used in all types of soda lime silica glass production. It is produced from granulated blast furnace slag which is a byproduct from steel making industry, being of homogenous and glassy nature.

BENEFITS

- Lower total energy per tonne of glass
- High furnace pull
- Better quality of finished product
- Lower harmful emissions CO₂, SO₂, NO_x
- Extends furnace life with lower refractory attack & lower furnace temperature

Typical Composition

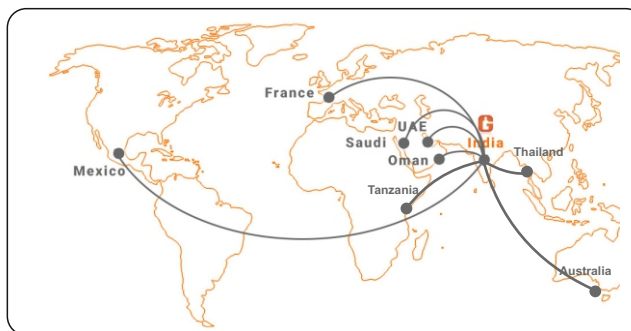
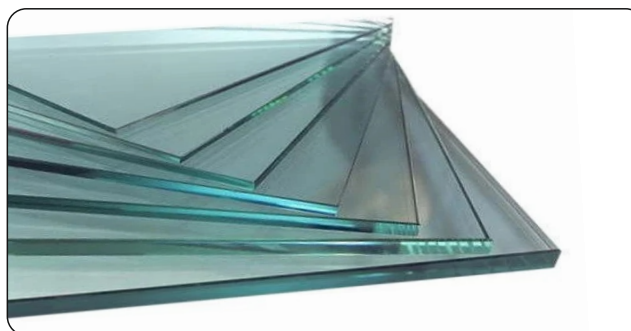
Chemical Analysis

%SiO ₂	31.92
%Fe ₂ O ₃	0.28
%Al ₂ O ₃	19.44
%TiO ₂	0.56
%CaO	33.35
%MgO	10.84
%Na ₂ O	0.41
%K ₂ O	0.74
%Total S	0.76
%MnO	0.48
%SO ₃	0.18
%S=	0.69
%Carbon	0.25
Total	99.09
%O ₂ equiv.	99.72
Redox	-0.0767

Physical Analysis

Micron	% Passing
1400	100
500	70
120	20

GLASS CONTENT : 97-99%



A Key Ingredient for the Glass Makers by ECSPL

Implementing Glassomite

ECSPL Works with glassmakers to help them reap maximum benefits by stepwise implementation under the guidance of expert independent glass technologist, by way of batch simplification

The % usage is generally determined by glass composition, color and local raw material used in all types of soda lime silica glass production

The general pattern of % usage is estimated to silica sand weight, expressed as below :

General Pattern of % Usage

Clear Container	06-07 %
Amber Container	18-22 %
Green Container	10-13 %
Float glass	03-08 %

Advantages of Glassomite usage

Eco friendly benefits

- Lower CO₂, NO_x, SO₂, emissions
- Elongated furnace campaign life
- Landfill of granulated slag have stopped due to increased awareness of its benefits

Economical benefits

- Lower total energy per tonne of glass
- Higher glass yield
- Reduced emissions of harmful environmental gases
- Increased furnace pull
- Batch simplification
- Better glass quality

Quality improvement

- Decreased batch stones
- Reduced seeds & blisters
- Color stabilization using redox concept
- Reduced refractory attack



www.glassomite.com

glassomite@gmail.com

+91 9822402481 / +91 9834330322



Glassomite Production Process

The production process starts from creating stock piles to attain maximum consistency & quality. Processing is done in complete fully automated plant i.e. drying, magnetic separation, crushing, screening, magnetic separation, packing, testing etc.

In process samples are drawn at regular interval to ensure quality consistency.



Glassomite Melting Process

The lower melting temperature is mainly due to glassy phase allowing energy consumption & furnace temperature to be reduced not affecting the final glass quality. Availability of CaO originally in Glassomite allows reduced endothermic effect associated with the decomposition of carbonates in the glass batch i.e. lime & dolomite.

The sulphide S₂⁻ from Glassomite lowers temperatures for decomposition of sodium sulphate to 900°C from 1255°C (without using Glassomite in the glass batch), allowing excess sodium sulphate to be decomposed by reaction of sulphate sulphide releasing Sulphur in the batch as SO₂. Thus reducing the foaming or reboil resulting in improved refining and better quality of glass.

The silica sand melting is the final stage of the melting process, Glassomite encourages dissolution of silica sand having lower % of SiO₂.

Decarbonisation of Glass Melting Process

The significant benefit of using Glassomite is its environmental benefit. Glassomite provides CaO and MgO in a glassy form, reducing the amount of limestone and dolomite in the batch and therefore reducing the CO₂ emissions associated with the decomposition of these carbonates.

In amber glass the process CO₂ emissions reduce by around 22%, green glass by 16% and flint around a 9% reduction.

Or for every 1000 kg of Glassomite used over 600 to 700 kg of CO₂ are saved !

Factoring in the rising cost of carbon tax worldwide and the current global climate Glassomite can help you achieve your sustainability goals.

#glassomite #glassindustry

A Sustainability Solution

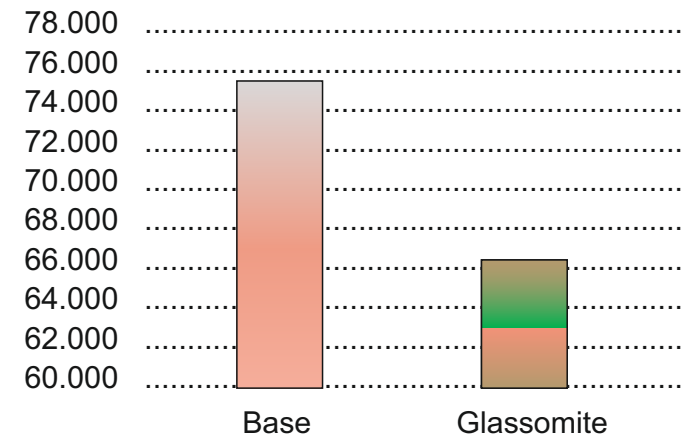
◆ 100% of Glassomite becomes glass

- Minimizing CO₂ footprint.
 - ▲ Glassomite introduces 0% CO₂
- Less Haulage = minimized CO₂
- Eased furnace combustion emissions
 - ▲ Reduction of SO_x emissions
 - Typically limiting or eliminating the requirement for flue gas filtration (EP)

◆ Minimizing virgin raw material input

◆ Increased Recycled Material Content

Virgin Raw Material Use Tons/Year



Refining

- Reduction in seed counts – Most dramatic difference
- Slag sulphide allows a delayed and longer acting reaction between S²⁻ and SO₄
- Carbon based systems tend to react earlier
- Allows the reduced redox flint and Float type glasses to be made
- Simpler redox control with a weak reducing agent such as Glassomite slag

Amber Glass

- Slag is well suited to Amber glass production
- Sulphide Sulphur well dispersed in the slag
- As the Sulphide is present the problems of Pyrites and C/SO₄ batches are avoided
- Less Sulphur in total is added to the batch
- SOX reductions of 40% are regularly seen
- Saltcake free Ambers can be made
- Typically we like to see 0.4% Fe₂O₃ and 0.03% retained Sulphide

Melting benefits

- Varies from colour and furnace but slag improves melting since :-
- Slag has already been molten
- It is Silica deficient
- Forms Low melting Eutectics increasing rate of Silica dissolution in the batch
- Typically 4 -10 % Fuel savings or increased pull
- Typical 2.5 - 3.9 % Energy saving with 10 % Glassomite (To Dry Sand weight)

Recent Examples Float

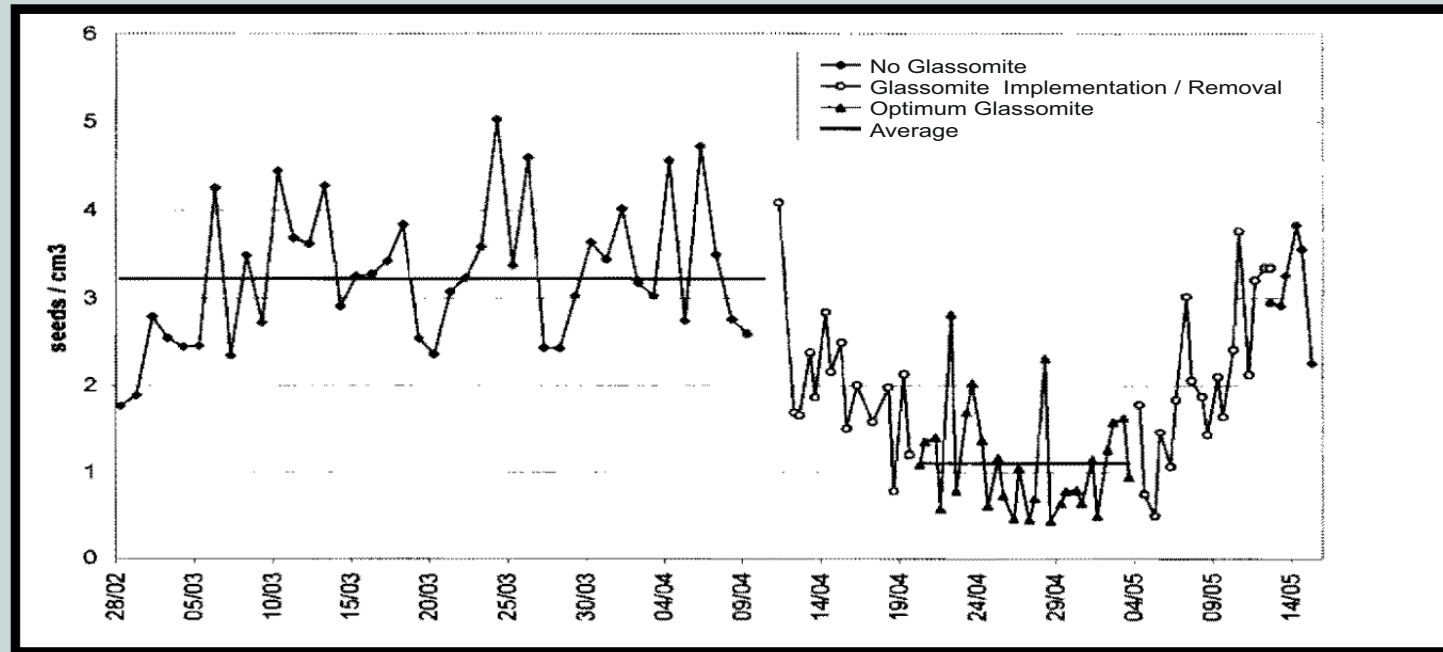
- Glassomite slag at 6.2% of sand weight enabled :-
- Limestone reduction of 28%
- Dolomite reduced by 14%
- Process CO₂ reductions of 10%
- Melting energy reduced by 4% further reducing CO₂ emissions
- Improved refining

Recent Examples Amber

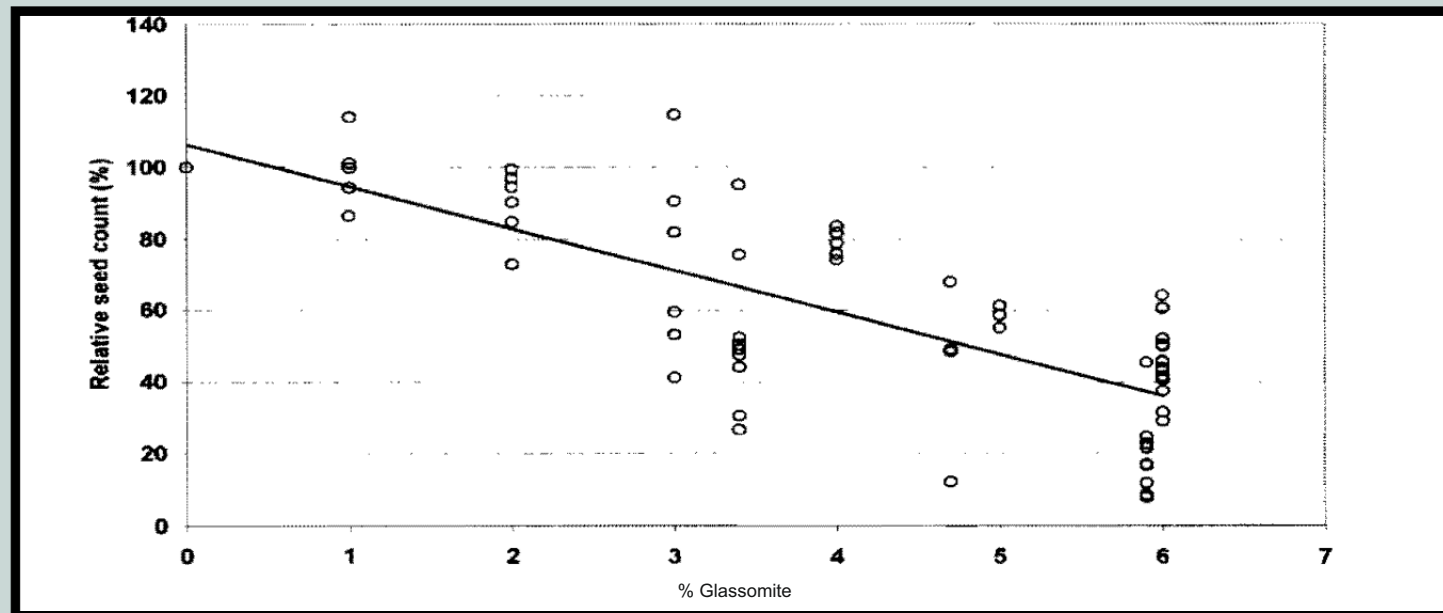
- At 15% Glassomite slag enabled :-
- Saltcake removal, SO_x lowered by 45% meeting more stringent air regulations without SO_x abatement
- This reduced process CO₂ emissions by 17%
- Improved melting reduced fuel usage and hence further CO₂ savings

Recent Examples Refining

Green Furnace Trial



Analysis of several Flint trials



Asset Preservation

- ◆ Glassomite minimizes the amount of Sulphur needed to develop Amber Glass
 - Sulphur is introduced directly as S^{-2} needed for color development
 - ▲ Vaporization of SO_x from the melt is limited
 - Reducing potential for regenerator congestion
 - Aggressive intermediate melting products from Salt Cake are reduced
 - ▲ Reduced vaporization
 - ▲ Less corrosive primary melt products
 - Supporting longer furnace life
 - Energy load on the furnace can be reduced
 - ▲ OBS. Some customers prefer to keep energy input the same and increase glass output
- ◆ Fewer deliveries of raw material and fewer batches/day eases wear and OPEX at the batch plant.



Glassomite

ADD VALUE to your GLASS

Other glass raw materials from ECSPL

- Aluminium Hydroxide
- Calcined Alumina
- Cobalt Oxide
- Glass Cullet
- Iron Chromite
- Iron Oxide
- Iron Pyrite
- Soda Ash
- Sodium Sulfate
- Silica Sand
- Zinc Oxide

www.glassomite.com

+91 9822402481 / +91 9834330322



Availability & Packing

ECSPL is strategically located in Pune (India) which is close to Nhavasheva port (Mumbai) making easy access to road and port facilities for global market. Within India it is distributed via roads or rail wagon.

Available packing is jumbo bags (1.25-1.35mt) or 50 kg pp bags.

Glassomite is currently being exported to MENA region, Latin America and other potential enquiries from Far East, South Africa and more.



Technical Support

EC SPL has delivered millions of tons of GlassoMite to glass manufacturers globally for more than 15 years.

- ◆ Field support is available locally in India
- ◆ Composition optimization
 - Cost
 - Property development
- ◆ Transition support
 - Composition control
 - Redox control
 - Color control
- ◆ Laboratory support by an certified Lab in USA.
 - Dedicated laboratory
 - ▲ Heavy minerals analysis
 - ▲ LECO analysis for carbon and Sulphur
 - ▲ XRF
 - ▲ Granulometric control



Contact Info

Office :

ECO CLAY SOLUTIONS PVT. LTD.

A1/6, Gururaj Society, Pune-Satara Road, Padmavati,
Pune - 411 037, Maharashtra (INDIA)

E-mail : sales@glassomite.com / glassomite@gmail.com

Web : www.glassomite.com

Contact : +91 9822402481 / +91 9834330322

Disclaimer : The information published is to give promotional value and not meant for law, It is a general information, general understanding of the product and not to be considered as legal or legal value. Any similarity of description of material, process, product name is due to information drawn from the public domain.