PRODUCT DATA SHEET

Dehybor®

$Na_2B_4O_7$
Sodium tetraborate
Anhydrous borax
Disodium tetraborate anhydrous
Grades: 12-mesh, 30-mesh, 80-mesh, Fine, and Type R
CAS Number 1330-43-4

Reducing energy consumption

Dehybor® results from the dehydration and fusion of borax. It is a hard, glassy, granular material.

Applications

It is an excellent flux and glass former. In aqueous solution, it can provide slow release of boron.

Glass

Dehybor is used as a source of B_2O_3 in the manufacture of many different types of borosilicate glass, including:

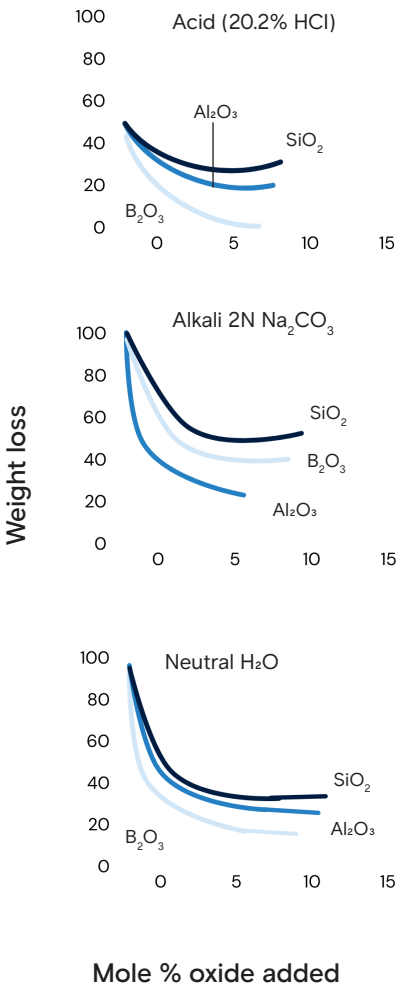
- Heat and chemical resistant glasses
- Illumination glasses
- Optical lenses
- Medical and cosmetic containers
- Hollow microspheres
- Glass beads

In the manufacturing process, *Dehybor* can increase furnace productivity. It has a higher bulk density and melts more rapidly with minimum energy than borax (5 and 10 mol). *Dehybor* also provides a source of sodium and can be used with boric acid or boric oxide to control the sodium oxide/boric oxide ratio in glass.

Frits, glazes, and enamels

Helps increase yields and reduce energy consumptions in glass, ceramic, and enamel frit production. *Dehybor* allows the formulation of low melting glazes and enamels with the correct thermal expansion. In enamels, it improves adhesion to metal by dissolving iron oxide and reducing melt surface tension.

Boric oxide improves resistance of glass to aqueous and chemical attack as weight loss tests show.
From *Glass* by Horst Scholze, 1991



Mole % oxide added

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Metallurgy
An excellent solvent for metallic oxides at high temperatures. *Dehybor* is used as a cover flux to protect metal surfaces from air oxidation. It also serves as a scavenger to dissolve metallic oxides and other contaminants in the production of ferrous and non-ferrous metals. Since boron is regarded as a unique and highly versatile alloying element in steel, *Dehybor* can be used to improve the properties and processing behavior of steel products.

Industrial cleaning products
Used in the formulation of slow-dissolving cleaning briquettes that are based on gelled or solidified borate suspensions.

Refractories
Used as a stabilizer and bonding agent in firebricks and castables. *Dehybor* gives an intermediate-temperature glassy bond prior to ceramic bond establishment, at which point the borate compound is frequently volatilized from the system.

Enhanced oil recovery
High viscosity oil-well fluids made from the reaction between *Dehybor* and polymers are used to increase the recovery of oil from subterranean formations.

Characteristics

Characteristics	
Molecular weight	201.22
Specific gravity	2.40
Melting point	743°C (1369°F)
Heat of solution (absorbed)	1.93×10^5 J/kg (83 BTU/lb)

Chemical composition	
B_2O_3	69.2%
Na_2O	30.8%

Stability
A stable, fused product which does not change chemically under normal storage conditions. If wetted, it reacts exothermically, forming hydrated sodium borates. To avoid caking, when storing the product, avoid exposure to a humid atmosphere and maintain package integrity.

Containers
May be available in bulk, IBCs, or small bags

About U.S. Borax
U.S. Borax, part of Rio Tinto, is a global leader in the supply and science of borates—naturally-occurring minerals containing boron and other elements. We are 1,000 people serving 650 customers with more than 1,800 delivery locations globally. We supply around 30% of the world's need for refined borates from our world-class mine in Boron, California, about 100 miles northeast of Los Angeles.

About 20 Mule Team products
U.S. Borax produces the *20 Mule Team*® borates family of products from naturally occurring minerals and have an excellent reputation for purity and safety when used as directed. Borates are key ingredients in a number of industrial applications including fiberglass, glass, ceramics, batteries and capacitors, wood preservatives, and flame retardants.

High quality, high reliability, high performance borate products. It's what we're known for.