

Bio Green Wax Ltd

128 City Road, London, UK, EC1V 2NX

Email: info@biogreenwax.com

Phone: +44 20 7101 3847

Web: <https://biogreenwax.com>

Technical Data Sheet

Product Name: Hydrogenated Castor Oil

HYDROGENATED CASTOR OIL (HCO) is a wax-like compound obtained by the controlled hydrogenation of refined Castor Oil. It is a hard, brittle, high melting point product that is practically odorless and tasteless. It is supplied in the form of flakes or as powder or in molten form. The color of HCO is cream to white. When melted it is clear, transparent to straw colored.

PHYSICAL PROPERTIES

Molecular Weight	932
Specific Gravity @ 25/25°C	1.00 +/- 0.03
Melting Point*	84-88°C
Ash Content	0.005% Max
Flash Point	290 °C
Fire Point	315 °C
Penetration Hardness (100 gms/77°F/5Sec) 2	2
Viscosity of Melt at 200 °F	0.24 poise
Viscosity of Melt at 250 °F	0.16 poise

COLOR

ASTM	1 ½ Units max
Lovibond (5 ¼" Cell) (10% alcohol solution)	3 Yellow, 1 Red max
Gardner Scale*	4G max

CHEMICAL PROPERTIES

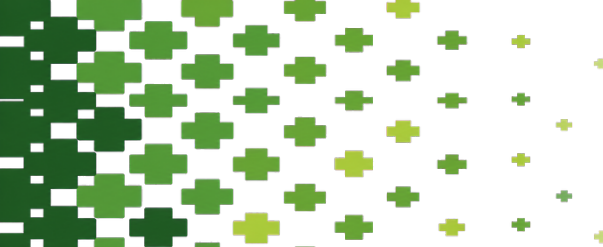
Acetyl Value	139 min
Acid Value*	5 max
Iodine Value*	5 max
Hydroxyl Value*	155 min
Saponification Value*	180 min

GLC Analysis

Palmitic Acid	1 - 1.5%
Stearic Acid	8 - 12 %
Oleic Acid	0 - 0.6%
Arachidic	0.2% max
12-Keto Stearic Acid	0 - 3 %
12-Hydroxy Stearic Acid	84 - 88%

* values reported on the COA





Bio Green Wax Ltd

128 City Road, London, UK, EC1V 2NX

Email: info@biogreenwax.com

Phone: +44 20 7101 3847

Web: <https://biogreenwax.com>

APPLICATIONS

LUBRICATION

HCO has a very wide use in the lubricant industry. It is used in the manufacturing of multi-purpose lithium and calcium premium grease formulations, which are stable for wide temperature ranges. These greases exhibit excellent resistance to water, oils and fats, solvents, crude petroleum and their derivatives. These find use in specialty products like plug valve greases, etc. HCO is used in powdered form for compressed metal powders and tableting. It is also used as an ingredient of drawing, cutting, buffing, and lapping compounds. In sintered ceramics, at a level of 2% it gives excellent lubrication during molding, increased strength and impact resistance to the finished item.

PAPER COATING

Solvent-free ethyl cellulose-HCO hot melts are used as protective coatings for food packaging, e.g. meat trays, bread wrappers, frozen foods, etc., soap wrappers, etc. It also acts as a blending agent for making compatible ethyl cellulose with paraffin wax as also with polymethacrylate esters.

PROCESSING AID

HCO at a level of 0.5 - 1.0% acts as a grinding aid for phenolic resins. Subsequently it acts as an anti-blocking agent, internal lubricant and mold release during the molding operation. When it is added at a level of 2-3% to polyethylene, it improves the processing and subsequent grease resistance of the sheeted polymer. In rigid PVC, at levels of 0.3-1.2 PHR it aids during the calendering, injection molding of pipe, fittings, conduit, sheet and profiles. In rubber (up to 20 PHR it is compatible) it improves the appearance of molded goods and provides excellent shape retention on extrusion.

POLISHES

HCO, along with other waxes, resins or oils is useful for several types of polishes, e.g. silicone auto cleaner polish, solvent based shoe polish, cream furniture polish etc.

INVESTMENT CASTING

The investment casting technique is used to produce finished metal parts when difficult to machine metals and alloys must be used or when intricate shapes or difficult contours cannot be milled or machined economically. HCO is important for investment casting since it leaves no ash residue, nor does it contain any low temperature volatiles. The hardness, sharp melting point, low melting viscosity and crystalline nature of HCO offer much as a wax ingredient. The coefficient of expansion, percent shrinkage and melt viscosity of HCO are excellent. Also its high thermal conductivity and low surface tension are other useful parameters for the casting process. Its initial cost can be considered low for investment type casting waxes.

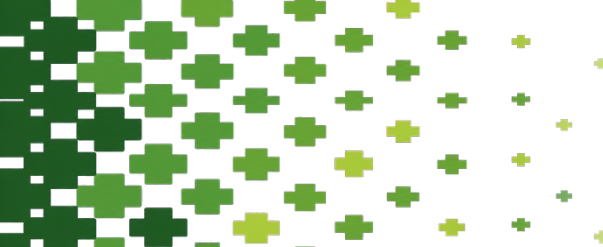
INKS & COPYING PRODUCTS

HCO is an excellent dispersing agent for iron blue, carbon black and other pigments in systems where waxes, oils and resins are used. It is also used in hot melt textile transfer inks. It also acts as vehicle and binder in the manufacture of copying products.

PENCILS & CRAYONS

HCO improves the writing quality of pencils through improved lead smoothness. "Preps" based on HCO will be uniform in composition and consistency, stable at high temperatures, non-hardening on aging, impart strength to the leads, and be cohesive and non-brittle.





Bio Green Wax Ltd

128 City Road, London, UK, EC1V 2NX

Email: info@biogreenwax.com

Phone: +44 20 7101 3847

Web: <https://biogreenwax.com>

COSMETICS

HCO finds uses in cleansing creams, liquefying creams, cold creams, rouges, lipsticks, etc. where it imparts firmness, increases the absorptive capacity for water and glycerine, improves the dye dispersion.

ELECTRICAL APPLICATIONS

HCO is useful for impregnating and insulating of condensers, for sealing relays, and for coating fuses because of its favourable dielectric properties.

HOT MELT ADHESIVES

HCO improves the oil & grease resistance of hot melt adhesives & also produces sharp melting, quick setting hot melts. It also reduces the melt viscosity. Some of the hot-melt adhesive systems where HCO is used are ethylcellulose based laminating hot melts, PE-PVA Copolymer based adhesives, PVB based adhesives, hot pickup label adhesives, wax paper adhesives, packaging adhesives with low temperature performance, leather to wood adhesives, etc.

PACKING

HYDROGENATED CASTOR OIL is supplied in 25 kg paper/jute or 50 kg jute bag, 25 kg PE / HDPE / PP bags or 400kg -1000 kg FIBC.

