

The Global Market for Nanocellulose to 2033

<https://marketpublishers.com/r/G5DD2450643EN.html>

Date: November 2022

Pages: 450

Price: US\$ 1,450.00 (Single User License)

ID: G5DD2450643EN

Abstracts

The global nanocellulose (NC) market has accelerated over the last few years as producers in Japan and to a lesser extent North America and Europe bring products to market. The development of these remarkable materials has compelled major paper and pulp producers to gravitate their traditional business towards advanced biorefineries, which have met with initial success and resulted in production capacity increases.

Three types of NC are commercially available: cellulose nanocrystals (CNC), cellulose nanofibers (CNF), and bacterial nanocellulose (BNC). In addition to being produced in different ways, these three types also vary in their physico-chemical properties, from size to crystallinity. Most commercially produced NC is CNF, which is produced on a large scale in Japan.

NC materials are abundant, renewable and inexpensive but are extremely strong, durable, and lightweight, non-toxic and are lower cost than other advanced materials and nanomaterials. Used as a materials additive and in composites, nanocellulose will help to drive the global move away from oil-based plastics and products to sustainable, bio-based alternatives.

Nanocellulose (NC) can be derived from a multitude of abundant cellulosic biomass sources such as wood pulp, agricultural crops, organic waste, as well as from bacteria. Properties including high tensile strength, biocompatibility, and high aspect ratio make it attractive to a wide range of markets, from medical to construction to aerospace. As nanocellulose originates from renewable matter, its potential to replace petroleum-derived materials in films, coatings, composites, and packaging are particularly interesting in the wake of current political and societal movements towards reduction of plastic consumption. Most of the NC being developed for commercial purposes is in the form of CNF. Currently, many NC-based applications are at an early stages, with some

applications already commercially available, mainly in Japan.

The Global Market for Nanocellulose to 2033 is the most comprehensive and up-to date report on nanocellulose currently available. Profiling over 160 companies, the report provides key information for investors and executives to enable them to understand and take advantage of the opportunities provided by nanocellulose. A must-have for anyone interested in the business and investment opportunities in nanocellulose, The Global Market for Nanocellulose to 2033 contains:

Tabular data on current nanocellulose products.

Market assessment by nanocellulose type: cellulose nanocrystals (CNC), cellulose nanofibers (CNF), and bacterial nanocellulose (BNC).

Assessment of nanocellulose by market including applications, key benefits, market megatrends, market drivers for use of nanocellulose, technology drawbacks, competing materials, estimated consumption of nanocellulose to 2033 and main OEMs in each market with potential interest in nanocellulose for product integration.

Graphical depictions of nanocellulose applications by market.

In depth-assessment of nanocellulose producer and distributor pricing in 2022.

Global market for nanocellulose in tons, by sector, historical and forecast to 2033.

In-depth profiles of nanocellulose producers including products, production capacities, manufacturing methods, collaborations, licensing, customers and target markets. Companies profiled include Granbio, Asahi Kasei, Cellucomp, Chuetsu Pulp & Paper, Daio Paper, DKS, Fiberlean, Fuji Pigment Co., Ltd. Innventia AB, KRI, Inc., Melodea, Nippon Paper, Oji and many more.

112 cellulose nanofiber company profiles

21 cellulose nanocrystal company profiles

20 bacterial nanocellulose company profiles

Detailed forecasts for key growth areas, opportunities and demand.

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Figure 177: HefCel-coated wood (left) and untreated wood (right) after 30 seconds flame test.

Figure 178: Bio-based barrier bags prepared from Tempco-CNF coated bio-HDPE film.

Figure 179. S-CNF in powder form.

Figure 180. Zelfo Technology GmbH CNF production process.

Figure 181. R3TM process technology.

Figure 182. Blue Goose CNC Production Process.

Figure 183: Celluforce production process.

Figure 184: NCCTM Process.

Figure 185: CNC produced at Tech Futures' pilot plant; cloudy suspension (1 wt.%), gel-like (10 wt.%), flake-like crystals, and very fine powder. Product advantages include:

Figure 186. Filler Bank CNC products.

Figure 187. Melodea CNC barrier coating packaging.

Figure 188. Plantrose process.

Figure 189. CNC solution.

Figure 190. University of Maine CNF production process.

Figure 191. US Forest Service Products Laboratory CNF production process.

Figure 192. Jelly-like seaweed-based nanocellulose hydrogel.

Figure 193. Cellugy materials.

Figure 194: Bacterial cellulose face mask sheet.

Figure 195. TransLeather.

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