

Lignosulfonates

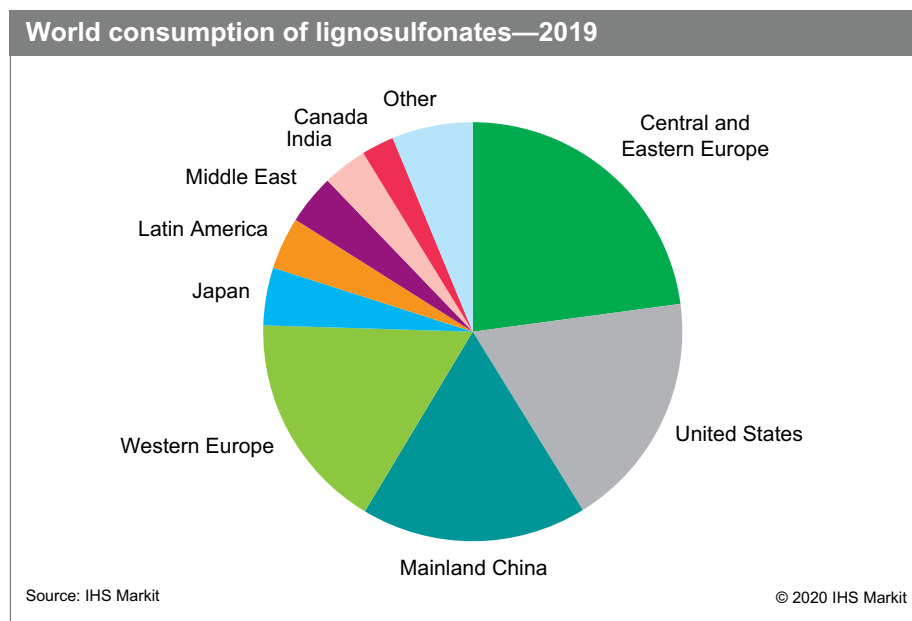
30 June 2020

Abstract

The two most abundant biopolymers on earth are cellulose and lignin. Both are harvested from trees. Cellulose is the main constituent of plant cell walls and of vegetable fibers such as cotton. Lignins are formed in the cell walls of wood and provide structure to the plant. They do not degrade or rot easily. Cellulose is separated from lignin to make paper and packaging materials, while lignin is much less desired and often burned for fuel. Some lignin is recovered in the form of lignosulfonates, which are used mainly as dispersants.

Lignosulfonates consist of a mixture of sulfonated lignin, sugars, sugar acids, resins, and inorganic chemicals. Most lignosulfonates are obtained from the spent pulping liquor of sulfite pulping operations; some are also produced by postsulfonation of lignins obtained by sulfate pulping (kraft process). Recovered coproduct lignosulfonates may be used with little or no additional treatment or they may be converted to specialty materials with the chemical and physical properties adjusted for specific end-use markets.

The following pie chart shows world consumption of lignosulfonates:



The largest-volume use of lignosulfonates is in concrete admixtures, but they are also used in a wide variety of functions where they serve as dispersants and binders in the construction, mining, agricultural, and many other industries. Use in concrete admixtures has stagnated, or even decreased, in Western Europe, the United States, mainland China, and Japan as a result of competition from polycarboxylate-based products that feature higher performance with higher concrete

Contacts

Maria deGuzman • Maria.deguzman@ihsmarkit.com

strength. However, use of lignosulfonates in developing countries continues to increase as it displays properties that are sufficient for many projects and is priced lower than competitive products.

Most of the end uses are well established. A few new applications have been commercialized, including use as a feed additive for swine, as a preservative in corn and cob maize silage, and as a dispersant in foodstuffs and drink for carotenoids and fat-soluble vitamins.

In the longer run, the industry is hoping that demand for lignosulfonates will grow because of its “greenness,” since it is sourced from renewable feedstocks. Lignosulfonates could conceivably be converted to aromatic monomers and oligomers or can be modified by traditional chemistry in water.

The industry consists of many smaller, independent producers, especially in mainland China. There have been considerable reductions in capacity over the last 20 years, and the industry could consolidate further. The two largest world lignosulfonate producers are Borregaard LignoTech and Rayonier. Together, these two companies accounted for nearly 49% of world lignosulfonate capacity as of May 2020.

The majority of the lignosulfonates produced at sulfite pulping operations are not isolated and are burned for fuel, as the market is limited. Since lignosulfonates have a relatively low monetary value, shipping costs usually make transportation of the liquids over long distances prohibitive. Dried lignosulfonates dominate overseas trade and overland lignosulfonate trade over distances greater than 500 miles (800 kilometers).

The global market for lignosulfonates is forecast to grow slowly, at an average annual rate of about 1%.

For more detailed information, see the table of contents, shown below.

IHS Markit’s Chemical Economics Handbook – *Lignosulfonates* is the comprehensive and trusted guide for anyone seeking information on this industry. This latest report details global and regional information, including



Global summary;
regional coverage



Producers with
annual capacities
and plant sites



Production figures
and trends



Consumption and
forecasts by end use
application



Manufacturing
processes and
environmental issues



Trade – imports
and exports

Key benefits

IHS Markit’s Chemical Economics Handbook – *Lignosulfonates* has been compiled using primary interviews with key suppliers and organizations, and leading representatives from the industry in combination with IHS Markit’s unparalleled access to upstream and downstream market intelligence and expert insights into industry dynamics, trade, and economics.

This report can help you

- Identify trends and driving forces influencing chemical markets
- Forecast and plan for future demand
- Understand the impact of competing materials
- Identify and evaluate potential customers and competitors

- Evaluate producers
- Track changing prices and trade movements
- Analyze the impact of feedstocks, regulations, and other factors on chemical profitability

Contents

Executive summary	6
Summary	7
Introduction	10
Manufacturing processes	13
From sulfite liquor	13
From kraft pulping liquor (black liquor)	14
– Lignin utilization from pulping liquor or wood waste	14
Biorefinery	15
Environmental issues	16
Supply and demand by region	17
United States	17
– Producing companies	17
– Salient statistics	19
– Production	19
– Consumption	20
– Dispersant applications	21
– Concrete admixtures	21
– Pesticide dispersants	22
– Oil field chemicals	22
– Asphalt emulsions	23
– Cement additives	23
– Water treatment	24
– Batteries	24
– Dyes	24
– Gypsum wallboard	24
– Leather tanning	25
– Micronutrients	25
– Pigment dispersants	25
– Industrial cleaners	25
– Other	25
– Binder and adhesive applications	26
– Road binder, dust control	26
– Animal feed pellets	26
– Ceramics, bricks, refractories, and foundry cores	27
– Adhesives	28
– Soil conditioner	28
– Carbon black	28
– Animal feed molasses additive	28
– Price	28
– Trade	29
– Imports	29
– Exports	30
Canada	31
– Producing companies	31
– Salient statistics	32

– Consumption	32
– Price	32
– Trade	33
Latin America	33
– Salient statistics	33
– Consumption	34
– Trade	34
Western Europe	36
– Producing companies	36
– Salient statistics	38
– Production	38
– Consumption	39
– Dispersant applications	39
– Concrete admixtures and cement additives	39
– Agricultural dispersants	40
– Oil well drilling additives	40
– Dyes and pigments	41
– Leather tanning	41
– Gypsum wallboard	41
– Lead batteries	41
– Paper and board sizing agents	41
– Other	42
– Binder and adhesive applications	42
– Animal feed pellets	42
– Carbon black and coal	42
– Other	43
– Vanillin	43
– Price	43
– Trade	44
– Imports	44
– Exports	45
Central and Eastern Europe	45
– Producing companies	45
– Salient statistics	47
– Consumption	47
– Price	48
– Trade	49
– Imports	49
– Exports	49
Middle East	50
– Salient statistics	50
– Price	51
– Trade	51
– Imports	51
– Exports	52
Africa	52
– Producing companies	52
– Salient statistics	52

– Price	53
– Trade	53
– Imports	53
– Exports	54
Mainland China	54
– Producing companies	54
– Salient statistics	57
– Consumption	57
– Dispersant applications	57
– Concrete admixtures	57
– Oil field chemicals	58
– Binder and adhesive applications	58
– Pelletizing	58
– Ceramics, bricks, refractories, and foundry cores	58
– Dust suppression	59
– Price	59
– Trade	59
– Imports	60
– Exports	60
Japan	61
– Producing companies	61
– Salient statistics	61
– Consumption	61
– Concrete admixtures	62
– Dye dispersant, pigments, and inks	62
– Ore briquetting	62
– Other	62
– Price	62
– Trade	63
Other Asia and Oceania	63
– Producing companies	63
– Salient statistics	64
– Trade	64
Additional resources	66
Revisions	67

IHS Markit Customer Care

CustomerCare@ihsmarkit.com

Americas: +1 800 IHS CARE (+1 800 447 2273)

Europe, Middle East, and Africa: +44 (0) 1344 328 300

Asia and the Pacific Rim: +604 291 3600

Disclaimer

The information contained in this report is confidential. Any unauthorized use, disclosure, reproduction, or dissemination, in full or in part, in any media or by any means, without the prior written permission of IHS Markit or any of its affiliates ("IHS Markit") is strictly prohibited. IHS Markit owns all IHS Markit logos and trade names contained in this report that are subject to license. Opinions, statements, estimates, and projections in this report (including other media) are solely those of the individual author(s) at the time of writing and do not necessarily reflect the opinions of IHS Markit. Neither IHS Markit nor the author(s) has any obligation to update this report in the event that any content, opinion, statement, estimate, or projection (collectively, "information") changes or subsequently becomes inaccurate. IHS Markit makes no warranty, expressed or implied, as to the accuracy, completeness, or timeliness of any information in this report, and shall not in any way be liable to any recipient for any inaccuracies or omissions. Without limiting the foregoing, IHS Markit shall have no liability whatsoever to any recipient, whether in contract, in tort (including negligence), under warranty, under statute or otherwise, in respect of any loss or damage suffered by any recipient as a result of or in connection with any information provided, or any course of action determined, by it or any third party, whether or not based on any information provided. The inclusion of a link to an external website by IHS Markit should not be understood to be an endorsement of that website or the site's owners (or their products/services). IHS Markit is not responsible for either the content or output of external websites. Copyright © 2020, IHS Markit®. All rights reserved and all intellectual property rights are retained by IHS Markit.

