

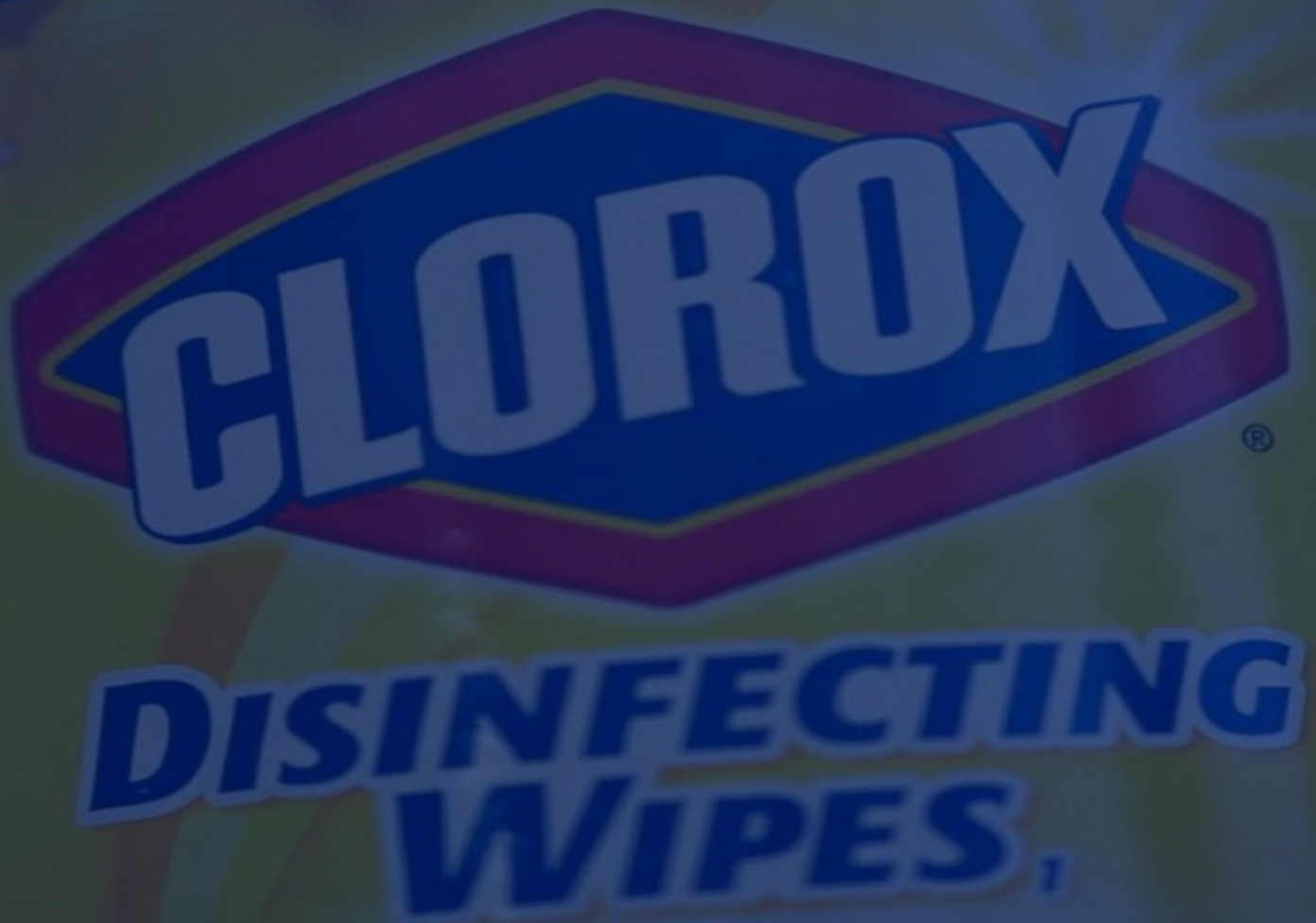


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Disinfectant Industry Report

Disinfectants Amidst Pandemic Times

With the current COVID-19 outbreak, the disinfectant products industry has been shocked by a never seen increase in demand due to efforts to fight the virus. Increases in production and reported shortages at various retail locations have made clear that consumers are not sparing with their cleaning needs. This has provided the opportunity for industry players to engage in competition to increase sales and market share by ramping up production to supply disinfectant products.

This report examines how COVID-19 concerns and containment measures have impacted the demand that disinfectant products experience.

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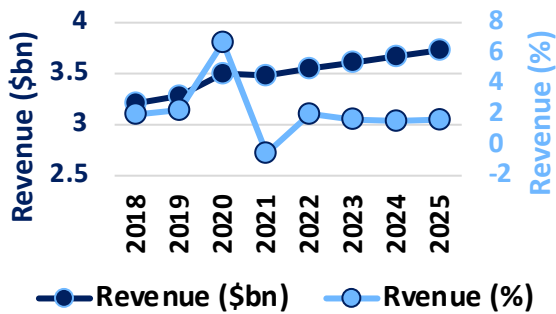
Industry Overview

Products and Services Segmentation

The disinfectant products sector focuses on producing chemical substances that are made to kill or inhibit the growth of harmful microorganisms. The industry manufactures mainly 3 types of disinfectants: air disinfectants, surface disinfectants and water disinfectants. They are made from alcohol, chlorine compounds, quaternary ammonium compounds, hydrogen peroxide, peracetic acid, among others.

Operators in the disinfectant manufacturing industry provide disinfectant products for home and industrial use. As a result, the industry performance is directly affected by the financial stability of downstream consumers such as households, and institutional consumers such as hospitals, accommodation companies, janitorial service providers and restaurants. As good macroeconomic conditions improved, demand for high-value products increased, which strengthened consumer spending. This is one of the reasons for the increase in demand in the past 5 years driving a 1.8% industry CAGR.

Industry Performance

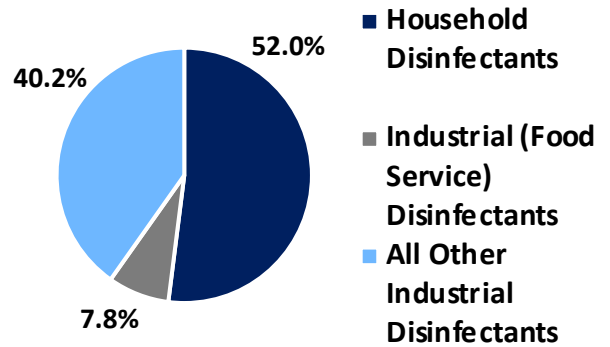


Products and Services Segmentation

Disinfectant products are used for several purposes, and they come in solid, liquid or gas form. Some of the most common uses include household applications (bathroom and floor cleaners), industrial plant sanitation, and healthcare applications (infection control and instrument sterilization). These products can be used in a variety of surfaces such as textiles, floors, counters and walls made from wood, glass and concrete. The intensity of each disinfectant varies depending on the application it will have; however, the intensity of the product can be modified by diluting it with water.

Typically, household disinfectants usually have the lowest intensity whereas industrial disinfectants tend to have the highest intensity.

Products and Services Segmentation



(Figure 2)

Household Disinfectants

Disinfectant products used in household applications generally contain bleach, ammonia, rubbing alcohol or hydrogen peroxide. These products are currently experiencing an abrupt spike in demand due to the COVID-19 pandemic, resulting in reported shortages at retail locations across the country despite companies increasing production to meet the unusual demand. A major factor causing this shortage is that polyester spunlace, a principal component in the manufacturing of disinfectant wipes, is a key ingredient also used for personal protective equipment (PPE) like masks and medical gowns (Kane et al, 2020). Before the pandemic started, household disinfectants have accounted for slightly less than half of all products sold by this industry, but due to current market conditions, it is expected that 52% of the industry revenue will come from household disinfectants this year. (Moses, 2020).

Industrial Disinfectants

Disinfectants used for industrial purposes are expected to generate 48% of the entire industry revenue this year (figure 2). These products are used for hand scrubbing, equipment disinfection and instrument disinfection. Industrial disinfectants are most commonly used in the food and healthcare industry because of their higher intensity needed to ensure efficiency in the disinfection process.



Industry Overview

In the food industry, disinfectants are routinely used to clean contact surfaces to ensure that the foods produced and consumed are free from microorganisms that can cause foodborne illnesses. In the healthcare industry, disinfectant products are widely used in hospitals and clinics for hygiene purposes, surface cleaning and disinfection of medical and surgical instruments such as stethoscopes, scalpels, trays, etc.

Due to the current world conditions, industrial disinfectants are experiencing a spike in demand as hospitals and clinics are working to slow the spread of the virus by keeping their facilities clean.

Markets Segmentation

Retailers

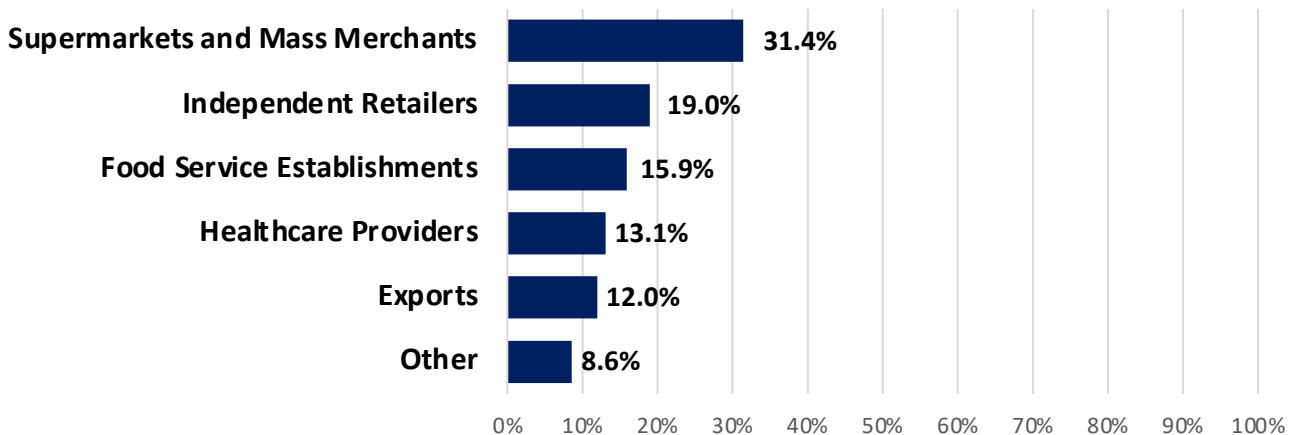
Customers that retail to the consumers market include supermarket chains, mass merchandisers, drugstores, and warehouse clubs. Retailers are expected to generate around 50% of the total industry revenue in 2020 (IBISWorld, 2020). Due to the high share of industry revenue, companies in the disinfectant manufacturing industry rely heavily on large retailers like Walmart, Costco and Target for a significant portion of sales to consumers. This can be seen through, Walmart, which is the largest customer of the major industry player The Clorox Company, which accounts for over 25.0% of the company's

Currently, retailers are experiencing high demand for disinfectant products due to the coronavirus outbreak, causing a lot of them to empty out their product inventory.

Food Services Establishments

Commercial and institutional food service establishments are estimated to produce approximately 16% of industry revenue this year (IBISWorld, 2020). Food service providers demand disinfectant products to disinfect contact surfaces to ensure that food produced and consumed is free from microorganisms that cause foodborne illness. The use of disinfectants is required during all levels of food production, including preparation, processing, sales and service. Even though generally, demand for this segment has increased due to more people looking for meals in restaurants, its share of industry revenue has decreased because demand from this segment has not grown as quickly as demand from retailers and healthcare providers. Some of the drivers behind this growth include an increase in the number of households and an increase in aging population with chronic diseases that need to be treated in hospitals. In addition, unlike retailers and healthcare providers, food services establishments revenue share is negatively affected by the pandemic due to the reduction in demand these types of businesses have

Major Market Segmentation



(Figure 3)



Industry Overview

Healthcare Providers

This segment is expected to account for 13% of industry revenue (IBISWorld, 2020). Disinfectant products are important tools in healthcare facilities that control infectious organisms. Medical facilities that have a large number of patients with various types of infections require more serious disinfectants due to immune vulnerabilities of patients and visitors. Therefore, the products used are typically very costly and only available through specialty companies. Hospitals typically use ethylene oxide and glutaraldehyde, which are high level disinfectants, to sterilize moisture and heat-sensitive equipment such as dialysis instruments, surgical instruments, nasal and throat instruments, etc. In the future, it is expected that health providers' demand will increase as the population ages and there are more patients with chronic illnesses that will require medical attention. In addition, COVID-19 has boosted the demand for disinfectants, as hospital efforts to contain and slow down the propagation of the virus increase.

Imports/Exports

Even though exports are not a major segment, they contribute 8.6% of industry revenue (IBISWorld, 2020). This market segment has increased as a percentage of industry revenue at around 12% annually in the last 5 years, as manufacturers have been pursuing growth opportunities overseas. Industry players are investing heavily in emerging markets in Central and Eastern Europe, China and India, where recent trends in economic and population growth suggest a promising future for industry products. As a result of that potential growth and the recent spike in demand due to the pandemic, it is expected that exports will grow at an annualized rate of 12.5% to \$300.5 million USD this year.

Regarding imports, \$104.2 million USD will be imported worldwide in 2020. Canada, Germany, Mexico and France are the major countries that import these types of products which accounts for 65%, 10%, 6% and 5% of the total amount respectively.

Competitive Landscape

According to IBIS World, the Disinfecting Manufacturing industry displays a low-to-moderate level of market share concentration. The industry's top two players, The Clorox Company and Lysol, account for 15.3% of industry revenue in 2020.

It is important to note that the sale of disinfectant products is reliant on replacement purchases. These purchases are meant to replace past cleaning products and disinfectants. Major companies, thus, focus on acquiring other players to achieve growth. Consolidation is common within the Disinfecting Manufacturing industry, as it enables major players to have greater bargaining power over prices. Nevertheless, market share concentration "has remained relatively stagnant in recent years." (IBIS World).

Competition within the Disinfecting Manufacturing industry is high and steadily increasing. According to IBIS World, industry operators compete primarily on the basis of product performance, brand recognition, price and benefit to consumers. An increase in competition has prompted companies to increase spending on advertising and promotions to reduce prices. A reduction in prices places a downward pressure on profit, however, it is a strategic option to increase market share. Two leading manufacturers, The Clorox Company and Lysol, have accelerated their marketing spending and promotion programs to reach more consumers, and consequently, conquer a larger portion of the retail market.

In light on the ongoing pandemic, product quality and performance play a crucial role. Hospitals, schools, offices and stores are scrambling to purchase mass quantities of disinfectants to reduce the spread of COVID-19. Thus, manufacturers that have proven to be effective over time will win consumers' brand loyalty and results in repeat sales. New or incoming players who do not have a track record of success will have difficulty in breaking into the industry.

Industry Overview

Major Players

The disinfectant products industry operates in a highly competitive and fragmented landscape. With approximately 100 companies, market share concentration in the industry is low. For example, the industry's two top players, The Clorox Company and Reckitt Benckiser Group PLC (RB) are expected to account for 15.3% of industry revenue in 2020. Other major operators include Ecolab Inc, STERIS plc, and Cantel Medical Corp.

Businesses in the industry primarily compete on the basis of product performance, brand recognition, price and value or other benefits to consumers. In the household market, competition is primarily based on product differentiation and brand loyalty established through extensive advertising. Conversely, competition in the commercial market is mainly based on performance and price. This competitive landscape has caused companies to increase spending on advertising and promotions to reduce prices, which has placed downward pressure on profits. In addition, sales of disinfectant products are reliant on replacement purchases because most households and commercial establishments already use disinfectant products. As a result, major companies are focusing on acquiring other players to keep growing. Likewise, the consolidation of companies will allow them to achieve synergies provided by economies of scale and will increase their bargaining power with retailers, which will boost margins.

Company	Ticker	Enterprise Value	Market Cap	Revenue	EV/EBITDA	EV/EBIT	P/E
USD mm							
Reckitt Benckiser Group plc	RB	84,086.41	70,605.20	17,707	15.9x	18.0x	NM
The Clorox Company	CLX	32,159	29,908	6,721	20.4x	25.0x	32.3x
Ecolab Inc.	ECL	62,016.60	55,621.50	14,518.80	18.4x	28.5x	40.6x
STERIS plc	STE	13,867.70	13,101.20	3,003	18.4x	24.9x	32.1x
Cantel Medical Corp.	CMD	3,108.20	2,184.90	1,022.20	16.3x	26.7x	78.3x
Maximum		84,086.41	70,605.20	17,707.27	20.4x	28.5x	78.3x
75th Percentile		62,016.60	55,621.50	14,518.80	18.4x	26.7x	50.0x
Median		32,159.00	29,908.00	6,721.00	18.4x	25.0x	36.5x
25th Percentile		13,867.70	13,101.20	3,003.00	16.3x	24.9x	32.3x
Minimum		3,108.20	2,184.90	1,022.20	15.9x	18.0x	32.1x

(Figure 4)



Key Industry Drivers

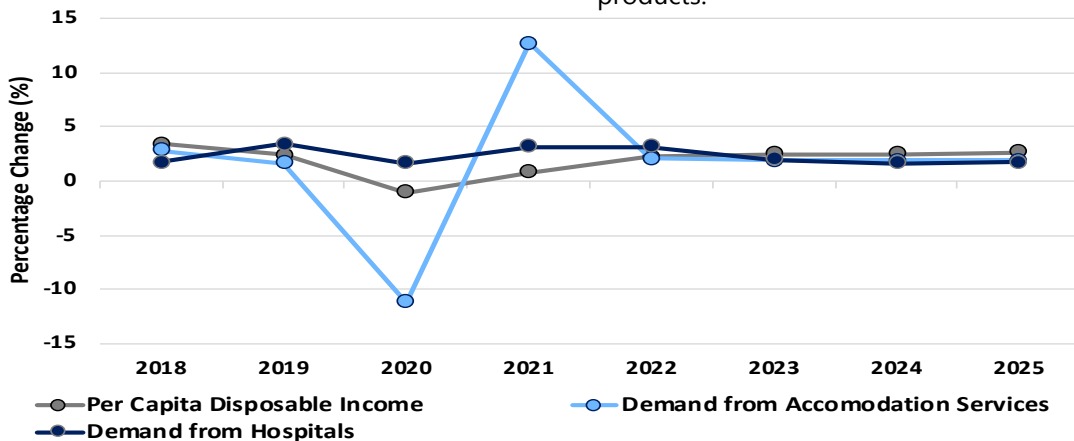
Per Capita Disposable Income

Disinfectants are generally considered to be discretionary items; therefore, the disinfectant manufacturing industry is moderately sensitive to consumer confidence and disposable income levels. This is because spending power influences how much and what quality of disinfectants consumers can afford. During lean economic times, consumers may purchase less-expensive industry brands, or turn to alternative products such as soap. Therefore, demand for disinfectant products rises in line with the level of disposable income held by households. Furthermore, disposable income also indirectly affects demand from downstream industry markets such as accommodation and food service establishments and healthcare facilities, which directly impact the demand for disinfectant products.

Demand from Accommodation and Food Services

Accommodation and food services businesses such as hotels and restaurants are a major consumer of disinfectant products. These businesses employ disinfectants to meet regulation requirements and to offer a clean service to consumers. For example, it is illegal to sell food products that were manufactured, prepared, preserved, packaged or stored under unsanitary conditions (Food and Drugs act, 2020). Therefore, disinfectants are vital for this industry, and demand from this segment relies heavily on the demand these types of business experience.

(Figure 5)



Demand from Hospitals

Hospitals and other healthcare service providers use disinfectants to clean facilities and to disinfect equipment to control infectious organisms. Due to the characteristics of this sector, the steady demand makes hospitals and other healthcare service providers a key buyer of the disinfectant products industry. Hospital acquired infections (HAI), also known as nosocomial infections, are one of the key factors driving demand for disinfectants in this market. These infections are transmitted in hospitals from infected patients, blood spills while collecting blood samples, or while cleaning feces (of patients) by professional cleaners. To prevent these infections, hospitals and healthcare institutions, as well as government regulations, emphasize cleanliness and disinfection, causing a rise in the demand for disinfectants.

Foreign Exchange rates

The foreign exchange rate has a significant effect on the exports and imports in the industry. As the currency of exporting countries becomes stronger, the amount of product they will be able to export is going to decrease, and vice versa with importing countries. Due to the amount of relief packages that the US is issuing to help businesses and people pass through the current crisis, and the amount of debt that is being issued by the government, it is expected that the US dollar is going to have one of its worst periods in the last years. This decrease in the USD is going to boost revenues from this segment because the U.S. is a net exporter of disinfectant products.



Outlook into the Future

Short-Term Outlook

A spike in the demand of sanitizers and soaps was accompanied by a host of regulations, some of which will change the way we clean. Already, hospitals are operating on surge capacity protocols and have doubled routine cleaning and disinfection efforts. This remains true across long-term care facilities, schools, stores, offices, and even our homes. The pandemic places an emphasis on how important best practices in cleaning and disinfecting are.

Thus, it makes sense that disinfectant sales have steadily increased. In the short-term, it is fair to say that sales will continue to increase as hospitals, schools, stores and offices are stepping up the routine sanitization to prevent the spread of COVID-19. (Macleod, 2020).

The COVID-19 pandemic is relatively new, and it is difficult to predict how it will behave in the future. It is also difficult to predict the consequences associated with the virus' behaviour. One can only come to the conclusion that the outlook of the disinfectant industry is contingent on the widespread success of the vaccination. For instance, if the vaccination were widely successful and administered to every individual within a population, the need for disinfectants may decrease. However, if the vaccination is not successful, or if a large portion of the population refuses the vaccination, the demand for disinfectants may remain stagnant or continue to increase.

In the short-term, it is safe to say that the outlook for the disinfectant industry is a positive one. Sales and revenues will continue to increase as demand increases.

Long-Term Outlook

In the long-term, the outlook for the disinfectant industry is unknown and contingent on the widespread success of the vaccination.

According to the Regulatory Affairs Professionals Society, a "fast-tracked vaccine development process could speed a successful candidate to market in approximately 12-18 months." (Craven, 2020). However, the vaccine won't be 100 percent effective in preventing COVID-19.

The WHO has set a goal of 50% effective, and claims that a "vaccine that is 50 per cent effective will be considered a good enough vaccine to move forward." For reference, the measles vaccines are about 97 per cent effective with two doses, while the flu shot varies between 40 to 60 percent effectiveness. This is according to the CDC. (Young, 2020).

Even after a vaccine is approved, it must be manufactured and distributed, which again, adds to the timeline. According to Global News, pharmaceutical giants are promising the production of 500 million doses per year. At this rate, it would take years to vaccinate worldwide. (Young, 2020).

The situation surrounding the ongoing pandemic is ambiguous. It is difficult to determine how the virus will change and how effective the vaccine will be. Likewise, the long-term outlook of the disinfectant industry is difficult to determine.

Ultimately, the demand for disinfectants may increase if COVID-19 cases continue to increase and if attempts to produce a vaccination rapidly are unsuccessful. This will, in turn, increase the supply of disinfectants. It is fair to state, however, that the supply and demand of disinfectants is higher and will remain higher than before the COVID-19 pandemic.

Important Trends

Important trends to consider when evaluating the Disinfectant Manufacturing industry include the increase in regulatory measures, the increase in competition, the increase in barriers to entry and the increase in globalization.

The majority of the trends identified can be attributed to the COVID-19 pandemic, while the increasing trend in globalization is an effort made to discover untapped markets by the two major players.