SUPPLY CHAIN RELATIONSHIPS BETWEEN FMCGS AND FOSSIL FUEL COMPANIES AND THEIR INTERMEDIARY PACKAGING COMPANIES

In The Climate Emergency Unpacked: How Consumer Goods Companies are Fueling Big Oil’s Plastic Expansion, we examine nine of the major fast moving consumer goods (FMCG) companies: Coca-Cola, Colgate-Palmolive, Danone, Mars, Mondelēz, Nestlé, PepsiCo, Procter & Gamble and Unilever. Many of these brands have been named top polluters in brand audits year after year, and are responsible for flooding the world with single-use plastic packaging.

We also examine twelve of the key resin suppliers supplying the world with plastic resin and ultimately single-use packaging. The petrochemical industry which makes the plastic resin is largely vertically integrated. Many of these are large oil “supermajors” whose operations include petrochemical and resin manufacturing from their oil and gas. Some large petrochemical conglomerates may be relatively unknown to consumers but whose business models are largely dependent on plastic and plastic packaging (e.g. Indorama); some of these companies have at least half of their production capacity tied to plastic packaging.

Ten of the 12 companies are among the top 25 producers, based on production capacity estimates: ExxonMobil (#1), Dow (#2), SABIC (#3), Ineos (#5), Braskem (#6), Formosa (#8), Total (#12), Indorama (#13), Chevron Phillips Chemical (#15), and Borealis (a subsidiary of OMV) (#22). Shell and Eni (through its subsidiary Versalis) are also key players in the field of single-use plastic packaging.

Despite the FMCG sector’s opacity concerning its plastic supply chains, our investigation revealed direct or indirect plastic supply chain connections between every one of the FMCG companies we covered and one or more major fossil fuel and/or petrochemical companies. Coca-Cola, PepsiCo, Nestlé, Mondelēz, Danone, Unilever, Colgate Palmolive, Procter & Gamble, and Mars all buy packaging from manufacturers supplied with plastic resin or petrochemicals by such well-known companies as ExxonMobil, Shell, Chevron Phillips, Ineos, and Dow. All the connections our research identified are shown below.

METHODOLOGY

To establish these supply chain connections, we consulted detailed import/export records, and analyzed customer-supplier relationships via the Bloomberg data service. To establish other evidence of business-to-business relationships, we also reviewed publicly available sources including company annual reports, press releases and websites, and identified plastic manufacturers co-located at FMCG manufacturing facilities.

Where possible throughout this report we discuss the likely oil and gas inputs of particular companies and/or at particular facilities, based on the likelihood that vertically integrated petrochemical companies are using at least some (if not majority) portions of their own inputs from upstream fossil fuel production. We make no claims that a specific piece of plastic sold in a particular geography can be identified as having originated there on the basis of this trade relationship, nor that any petrochemicals themselves ended up in a particular piece of packaging. This research is intended to establish primarily business relationships, including indirect ones, and upstream origins of plastic, generally, and is intended to underscore that, despite the complexity of the plastic manufacturing process, the consumer goods companies ultimately purchase fossil fuels and plastic resins produced by some of the world’s largest oil majors.

RELATIONSHIP EVIDENCE:

We classify trade relationships between fossil fuel companies as “direct relationships” when the consumer goods company is likely a direct customer or we have evidence of an existing relationship. We classify these as “indirect exposure” when the consumer goods company has a suspected connection with a fossil fuel company or purchases its packaging from a company which is supplied by the fossil fuel company; we acknowledge that there may be several steps in between. For example, Colgate-Palmolive may have a “direct relationship” with Chevron as it received shipments of Chevron-branded HDPE resin, but may be exposed to ExxonMobil via its packaging supplier Amcor; we do not claim that any specific packaging made for Colgate-Palmolive by Amcor does or does not contain any ExxonMobil branded resin. We describe shipments as “regular” when the trade relationship appears to be consistent over the time period of the analysis.

We recognize that the trade relationships depicted and described here may change over time, but we present them as an indication of the scale of the system whereby FMCG companies and fossil fuel majors profit from and have shared interests in perpetuating single-use plastic.

We also include evidence of business relationships...
between consumer goods companies and fossil fuel suppliers if they are in chemical recycling partnerships together. Because these technologies have not yet been proven at commercial scale, and there is currently no material available from them on the market to purchase, we put this evidence under “indirect exposure.” It is assumed that the consortia could result in a future direct supply relationship of any material derived from the chemical recycling process (see page 21 of the report).

For each consumer goods company, evidence for the direct supply is listed as citations, along with the evidence of their business relationship to the packaging company; evidence that those packaging companies are supplied by the fossil fuel companies are supplied as citations in section two.

**Bloomberg Terminal:**
Supplier–customer relationships identified using the Bloomberg Terminal “Supply Chain Analysis” tool; analysis was performed in May 2020, January 2021, and July 2021. We acknowledge that specific trade and customer contract relationships may change over time, but these relationships were active at the time of analysis.

**Panjiva Methodology:**
We searched import/export records using the subscription database Panjiva. Panjiva is a subscription-based website with global import and export details on commercial shipments. This search reflects shipments occurring between January 1, 2019, and July 1, 2020; we again performed this search in February 2021, reflecting shipments from January 1, 2019, through February 21, 2021. We used a variety of keyword searches for specific types of plastic and key petrochemical inputs used in the making of plastic. Panjiva allows visibility into import/export records for a select number of countries, and thus reflects an unknown sample of companies’ trade relationships. These records show imports and exports to and from, as well as transshipments within, 17 countries in North and South America and Asia, and thus offer only one picture of trade relationships.

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**PART 1: HOW THE FMCGS ARE SUPPLIED BY THE FOSSIL FUEL COMPANIES**

All relationships identified through Bloomberg or Panjiva analysis by Greenpeace USA unless otherwise specified.

**Coca-Cola**

**Direct Relationship**
- Shipments of polyethylene from Braskem to Sunchodesa in Ecuador were labeled “for Coca-Cola,” as recently as April 2020.¹¹
- Coca-Cola received some shipments of PET from Borealis in 2017 to Arca Continental (a Coca-Cola bottling partner in Ecuador).

**Indirect Exposure**
- Coca-Cola appears¹² to have had a connection 2010–2013 with ExxonMobil Chemical (which may be via a packaging manufacturer/converter) – see ExxonMobil Chemical customers below.
- Coca-Cola is a customer of Amcor,¹³ which is supplied various petrochemicals and resins by ExxonMobil, PET from DAK Americas/Alfa and Indorama, polypropylene from Borealis, and polyethylene and polyolefins from Dow.
- Coca-Cola is a customer of Alpek/DAK Americas,¹⁴ which is supplied paraxlenes by ExxonMobil.¹⁵
- Coca-Cola is a customer of Alpla,¹⁶ which has received HDPE from Braskem, polyethylene from Dow, PET from Indorama, HDPE from Ineos, and HDPE and polypropylene from SABIC.
- Coca-Cola is a customer of Aptar¹⁷ which is supplied with polypropylene by SABIC.
- Coca-Cola is a customer of Berry Global,¹⁸ which has purchased plastic closures from Shell, polypropylene from Total and resin from SABIC.
- Coca-Cola is a customer of Huhtamaki,¹⁹ which has purchased LLDPE from ExxonMobil.
- Coca-Cola is a customer of Indorama.²⁰
- Coca-Cola is a customer of Sealed Air,²¹ which purchases polyolefins from Dow and vinyl acetate from Braskem.

**Colgate-Palmolive**

**Direct relationship**
- Colgate-Palmolive Companies (Colombia) is listed as consignee for several shipments of high-density polyethylene from Braskem. There were seven shipments between August 10, 2020, and November 16, 2020 (search parameters from February 9, 2016, through February 21, 2021). (Note that in this time frame, Colgate-Palmolive received shipments of HDPE from other suppliers not reflected in this report.²²)
- Colgate-Palmolive Pakistan has accepted several shipments of Marlex™ High Density Polyethylene Resin;²³ Marlex is a brand name of resin manufactured...
by Chevron Phillips. The most recent shipment was in October 2020. The shipments originated with Gulf Polymers Distribution. Gulf Polymers Distribution is the exclusive distributor for Saudi Polymers, a joint venture company formed in 2007 that is owned by a Chevron Phillips Chemical subsidiary (35%) and National Petrochemical Company (Petrochem) (65%), a joint stock company incorporated in the Kingdom of Saudi Arabia.

- Since 2016, Colgate-Palmolive has received 16 shipments from Indorama Ventures, the most recent in January 2021. Most shipments were types of PET, including Polyclear Refresh PET.
- Colgate-Palmolive received at least one shipment of propylene from ExxonMobil, on July 9, 2018.

**Indirect Exposure**

- Colgate-Palmolive is a customer of Alpla, which has received HDPE from Braskem, polyethylene from Dow, PET from Indorama, HDPE from Ineos, and HDPE and propylene from SABIC.
- Colgate-Palmolive is a customer of Amcor, which is supplied various petrochemicals and resins by ExxonMobil.
- Colgate-Palmolive is a customer of Berry Global, which has purchased plastic closures from Shell, polypropylene from Total and resin from SABIC.
- One of Colgate-Palmolive’s long-term suppliers in India is plastic tube manufacturer Essel Propack, which has received several shipments of LLDPE from ExxonMobil Chemical Asia Pacific as recently as November 2020.

**Danone**

**Indirect Exposure**

- Danone is a customer of Amcor, which is supplied various petrochemicals and resins by ExxonMobil, PET from DAK Americas/Alfa and Indorama, polypropylene from Borealis, and polyethylene and polyolefins from Dow.
- Danone is a customer of Sealed Air, which purchases polyolefins from Dow and vinyl acetate from Braskem.
- Danone is supplied by Greiner for packaging such as polypropylene yogurt cups. Greiner is supplied by Borealis and SABIC.
- Danone is a customer of Indorama.
- Danone joined a chemical recycling consortium that includes BP’s Infinia, now owned by Ineos following the sale of some of BP’s petrochemical assets to Ineos.

**Mars**

**Indirect Exposure**

- Mars appears to have had a connection with ExxonMobil Chemical, which may be via a packaging manufacturer/converter using plastic produced by ExxonMobil (see ExxonMobil Chemical customers, below).
- Mars is a customer of Huhtamaki, which is supplied LLDPE by ExxonMobil Chemical. Mars has announced its plans to use plastic packaging developed by Huhtamaki and SABIC.
- Mars is in a chemical recycling consortium with Total.

**Mondelēz**

**Indirect Exposure**

- Mondelēz appears to have had a relationship with ExxonMobil Chemical, which may be via a packaging manufacturer/converter using plastic produced by ExxonMobil (see ExxonMobil Chemical customers, below).
- Mondelēz is a customer of Amcor, which is supplied various petrochemicals and resins by ExxonMobil, PET from DAK Americas/Alfa and Indorama, polypropylene from Borealis, and polyethylene and polyolefins from Dow.
- Mondelēz is a customer of Berry Global, which has purchased plastic closures from Shell, polypropylene from Total and resin from SABIC. Berry Global is a general customer of Mondelēz and it has announced that it will supply Mondelēz with a cream cheese tub, which Berry advertises as made with polymers sourced specifically from SABIC.
- Mondelēz appears to be a customer of Jindal Films, which has been supplied ethylene and polypropylene by Ineos and Ineos Europe.
- Mondelēz is cited as a customer of Huhtamaki India, which is supplied by ExxonMobil.

**Nestlé**

**Direct Relationship**

- Nestlé had partnerships as far back as 2011 with Braskem to use Braskem’s proprietary plastic caps on its beverage packages, and the two companies have participated in plastic recycling projects.

**Indirect Exposure**

- Nestlé is a customer of Amcor, which is supplied various petrochemicals and resins by ExxonMobil, PET from DAK Americas/Alfa and Indorama, polypropylene from Borealis, and polyethylene and polyolefins from Dow. Approximately 4% of Amcor’s revenue is attributable to Nestlé.
- Nestlé is a customer of Berry Global, which has purchased plastic closures from Shell, polypropylene from Total, and resin from SABIC.
- Nestlé is a customer of Aptar, which is supplied by SABIC.
- Nestlé is a customer of Sealed Air, which purchases polyolefins from Dow and vinyl acetate from Braskem.
• Nestlé is a customer of Greiner, which purchases polypropylene from Borealis, SABIC, and Total.
• Nestlé is a customer of Huhtamaki, which is supplied by ExxonMobil.
• Nestlé is a customer of Indorama. Indorama indicated, in 2018, that Nestlé was a main customer.
• Nestlé is a customer of Sealed Air, which purchases polyolefins from Dow and vinyl acetate from Braskem.

PepsiCo
Indirect Exposure
• PepsiCo appears to have had a connection with ExxonMobil Chemical (which may be via a packaging manufacturer/ converter) – see ExxonMobil Chemical customers below.
• PepsiCo is a customer of Indorama. Indorama stated as recently as 2019 that Coca-Cola, PepsiCo, and Procter & Gamble were three of its four main customers.
• PepsiCo is a customer of Alpla, which has received HDPE from Braskem, polyethylene from Dow, PET from Indorama, HDPE from Ineos, and HDPE and polypropylene from SABIC.
• PepsiCo is a customer of Aptar, which is supplied by SABIC.
• PepsiCo is a customer of Berry Global, which has purchased plastic closures from Shell, polypropylene from Total, and resin from SABIC.
• PepsiCo is a customer of Huhtamaki, which is supplied by ExxonMobil.

Procter & Gamble
Indirect Exposure
• Procter & Gamble is a customer of Amcor, which is supplied various petrochemicals and resins by ExxonMobil, PET from DAK Americas/Alfa and Indorama, polypropylene from Borealis, and polyethylene and polyolefins from Dow.
• Procter & Gamble is a customer of Alpla, which has received HDPE from Braskem, polyethylene from Dow, PET from Indorama, HDPE from Ineos, and HDPE and polypropylene from SABIC.
• Procter & Gamble is a customer of Aptar, which is supplied by SABIC.
• Procter & Gamble is a customer of Berry Global, which has purchased plastic closures from Shell, polypropylene from Total, and resin from SABIC.
• Procter & Gamble has been a long-term contract customer of Essel Propack; Essel has received several shipments of LLDPE from ExxonMobil Chemical Asia Pacific.
• Procter & Gamble is a customer of Huhtamaki, which is supplied by ExxonMobil.
• Procter & Gamble is a customer of Indorama. Indorama stated, as recently as 2019, that Coca-Cola, PepsiCo, and Procter & Gamble were three of its four main customers.

Unilever
Indirect Exposure
• Unilever appears to have an ongoing business relationship with ExxonMobil Chemical (which may be via an intermediary packaging manufacturer/converter but requiring bespoke film from ExxonMobil) – see ExxonMobil Chemical customers below.
• Unilever is a customer of Alpla, which has received HDPE from Braskem, polyethylene from Dow, PET from Indorama, HDPE from Ineos, and HDPE and polypropylene from SABIC.
• Unilever is reportedly a customer of Greiner.
• Unilever is a customer of Huhtamaki, which is supplied by ExxonMobil.
• Unilever is a customer of Berry Global, which has purchased plastic closures from Shell, polypropylene from Total, and resin from SABIC.

PART 2: KNOWN FOSSIL FUEL SUPPLIER EVIDENCE FOR THE PACKAGING COMPANIES (NOT EXHAUSTIVE)

All relationships identified through Panjiva analysis by Greenpeace USA unless otherwise specified.

ALPEK/DAK AMERICAS
• DAK Americas has received regular shipments of paraxylene from ExxonMobil, as recently as February 2021. DAK Americas is vertically integrated and could be sourcing input from parent company Alfa’s operations. DAK Americas plant in Monck’s Corner South Carolina is also adjacent to Ineos’ Cooper River aromatics refining, which is a likely possible supplier of its xylenes via pipeline.

AMCOR
• Amcor is the consignee on regular shipments from ExxonMobil Chemical Asia, including ethylene, alpha-olefin copolymers, and LLDE (LL1001XBU resin). These shipments were as recent as November 2020.
• Amcor is the consignee on shipments of polypropylene from Borealis, as recently as December 2020.
• Amcor is the consignee on regular shipments of PET from DAK Americas, as recently as January 2021.
• Amcor has received shipments of PET from Indorama as recently as July 2020.
• Amcor’s Indonesian facility has received regular shipments of polyethylene resin and polyolefins from Dow, as recently as November 2020.

ALPLA
• Alpla has received regular shipments of HDPE from Braskem, at least as recently as March 2021.
• Alpla has received regular shipments of polyethylene from Dow, at least as recently as October 2021.
• Alpla has received regular shipments of PET from
Indorama, at least as recently as December 2020.
- Alpla has received some shipments of HDPE from Ineos, as recently as January 2021.
- Alpla has received some shipments of HDPE and polypropylene from SABIC, as recently as July 2020.

APLAR
- Aptar has received some shipments of polypropylene from SABIC, most recently as of December 2020.

BERRY GLOBAL
- Berry Global purchased plastic at least once from Shell (plastic closures).76
- Berry Global received a shipment of polypropylene from Total.77
- Berry Global is a customer of SABIC for “circular polymers.”78
- Berry Global is also a known supplier to ExxonMobil and BP.79

ESSEL PROPACK
- Essel Propack has received shipments of LLDPE from ExxonMobil as recently as November 2020.90

GREINER PACKAGING
- Greiner entered into a partnership with Borealis, intended to develop recycled-plastic applications.81 Greiner received some shipments of polypropylene from Borealis as recently as March 2021.82
- Greiner has entered into a partnership on polypropylene packaging derived from SABIC’s plastic resin derived from pyrolysis.84
- Greiner had received regular shipments of polypropylene from Total Petrochemicals, in 2016 and 2017, however this trade pattern is not observed in the data in recent years.

INDORAMA
- Indorama Ventures Limited is a major global petrochemical producer, one of the top polyester suppliers in the world, claiming that 1 in 5 of the PET bottles in the world are made from its resins.85
- As recently as 2018, Indorama disclosed its purchase of key inputs from fossil fuel companies Chevron Phillips, ExxonMobil, Ineos, SABIC, and Shell.86
- Indorama is a current customer of Ineos, according to a detailed investigation by Stand.earth.87
- Indorama reportedly secured a long-term contract to purchase ethane and propane feedstock from Targa Resources in 2016;88 Targa has natural gas fractionation facilities at Lake Charles, Louisiana, and Mont Belvieu, Texas,89 which are supplied from an array of the thousands of fracking wells in the U.S., including the Permian Basin.

HUHTAMAKI
- Suppliers: ExxonMobil Chemical is listed as a shipper on shipments of LLDPE to packaging manufacturer Huhtamaki India as recently as November 27, 2020.90
- Customers: Huhtamaki India states its customers include Coca-Cola, Mondelēz, Nestlé, PepsiCo, Procter & Gamble and Unilever.91

JINDAL FILMS
- Jindal Films has received regular shipments of polypropylene from Ineos, as recently as December 2020.

SAICA FLEX
- Saica Flex has a partnership with INEOS in which INEOS produces film with recycled plastic pellets provided by Saica’s waste management division.92 This is a business link to INEOS, not a supply link; however it is possible this relationship could indicate other supply relationships (e.g. Saica sourcing polymers or other inputs from INEOS).

SEALED AIR
- Sealed Air (Cryovac Brasil) has received regular shipments of polyolefin plastomer from Dow, as recently as January 2021.93 Cryovac is the food packaging division of Sealed Air.
- Sealed Air has received regular shipments of vinyl acetate from Braskem, as recently as January 2021.
- Sealed Air received at least one shipment of polyethylene from ExxonMobil in 2019.

VERTICALLY INTEGRATED PETROCHEMICAL PLASTIC PACKAGING COMPANIES - All relationships are identified through Panjiva analysis by Greenpeace USA, unless otherwise specified.

BRASKEM
Suppliers:
- Since at least 2019, Braskem has received regular shipments of PVC additives and catalyst IVOL,94 including ethylene dichloride,95 from Ineos.
- At least through 2020, Braskem has received regular shipments of 1-Hexene from Chevron Phillips. 1-Hexene is used in the production of polyethylene, which Chevron Phillips notes is used in food and beverage containers.96

FORMOSA
Fossil fuel suppliers:
- Formosa Plastics Group has received at least one shipment of polyethylene from ExxonMobil (imported into the U.S. from Belgium) in 2019.
- Formosa Plastics Group has received at least one shipment of vinyl alcohol from Ineos (imported into
the U.S. from Belgium) in May 2020.

FMCG customers:
- In this analysis, we did not find evidence of Formosa supplying these nine consumer goods companies, however this does not mean that these connections do not exist, as this investigation is one snapshot.

VERSALIS (ENI)
- Suppliers: Versalis Americas has received one shipment in December 2020 from Ineos in Grangemouth (it is not clear from the record what was shipped, though it appears to be a chemical).
- FMCG customers: In this analysis, we did not find evidence of Versalis supplying these nine consumer goods companies, however this does not mean that these connections do not exist, as this investigation is one snapshot.

PART 3: KNOWN AND SUSPECTED PACKAGING SUPPLIERS OF THE FMCGS (NOT EXHAUSTIVE)

Coca-Cola
- Amcor
- Alpek/DAK Americas
- Alpla
- Aptar
- Berry Global
- Braskem
- Chevron Phillips
- ExxonMobil Chemical
- Far Eastern New Century
- Graham Packaging
- Huhtamaki
- Indorama
- M&G Polymers
- (potential) Plastipak
- Alpek/DAK Americas
- Sealed Air

Colgate-Palmolive
- Alpla
- Amcor
- Aptar
- Berry Global
- Essel Propack: One of Colgate’s long-term suppliers in India is plastic tube manufacturer Essel Propack.
- Far Eastern New Century
- Indorama

Danone
- Alpla: While it is unknown if or to what extent Alpla supplies Danone with plastic packaging, Alpla’s website shows Danone dairy products and Alpla also have a link through a chemical recycling consortium.

Mars
- Amcor
- ExxonMobil Canada
- Huhtamaki
- Saica Flex
- Total

Mondelez
- Amcor
- Berry Global
- Huhtamaki
- Jindal Films

Nestle
- Amcor
- Aptar
- Berry Global
- Braskem
- Gerreshiemer
- Greiner
- Huhtamaki
- Indorama
- Plastipak
- Sealed Air

PepsiCo
- Alpek/DAK Americas
- Alpla
- Amcor
- Aptar
- Berry Global
- Braskem
- ExxonMobil Chemical
- Huhtamaki
- Indorama
- Jindal Films
- Plastipak
- TetraPak

Procter & Gamble
- Alpek/DAK Americas
- Alpla
- Amcor
- Aptar
- Berry Global
- Essel Propack
- Huhtamaki
- Indorama
- Plastipak
- UFlex
Unilever
- Alpla
- Amcor
- Aptar
- Berry Global
- ExxonMobil
- Huhtamaki

OTHER RELEVANT EVIDENCE:

PDF images of webpages are available upon request. What follows is a summary of the information.

Huhtamaki:
Huhtamaki website, accessed March 3 and June 1, 2021.
“Today, we are proud that we matter to those, for whom packaging masters most. And this is reflected in our impressive client list that includes Britannia, Coca-Cola, Ferrero, GlaxoSmithKline, Marico, Mondelēz, Nestlé, Pepsico, P&G, Unilever, etc.”

ExxonMobil Chemical:
The following information appears on Linkedin. Linkedin users identify themselves as current and former employees of ExxonMobil. The profiles were accessed in May of 2021. Based on the information in these public accounts, the company likely has connections to large FMCGs. PDF images of the public accounts are available upon request. What follows is a summary of the information.

ExxonMobil Chemical
Account Manager at ExxonMobil Films Canada Ltd. 1991-Present
Work with major North American converters developing new business opportunities and supporting these converters with their requirements to support major brand owners i.e. Kraft, Unilever, Mars, PepsiCo etc.

ExxonMobil Chemical
Global Sales Manager, 2010-2013
Executive leadership position responsible for managing a global sales and development organization comprised of more than 90 people, generating $900m in revenue and managing a $20m budget. Global responsibility for multinational consumer goods companies including Coca-Cola, PepsiCo, Unilever, Mars, Mondelez and major international converters Avery, Bemis, Printpack, Amcor, etc.

ExxonMobil
Sales Manager, Films- Europe, Africa M. East. 2012-2013
Managed all sales activities for the flexible packaging market in the EMEA region for the Films Business Unit. Role highlights include: re-focused the sales organization on new business development through effective sales pipeline management, and managed relationships and contract negotiations with key accounts including Nestlé, Mondelez, PepsiCo and Mars.

Aptar:
Aptar website, Job listing page, accessed March 2021
Global Account Manager, PepsiCo, Food + Beverage
Date: March 21, 2021, Location: Home Office/Remote, US
Company: Aptar Group


