

# PAS 2060 Qualifying Explanatory Statement –

## **Castrol Carbon Neutral Products**

3rd Application Period: January – December 2022

This is a PAS 2060 Qualifying Explanatory Statement to demonstrate that Castrol has achieved carbon neutrality with a commitment to maintain in accordance with PAS 2060:2014 reporting

## **Carbon Neutrality Declaration**

"Carbon neutrality of the products in scope achieved by Castrol in accordance with PAS 2060 at 31st December 2022 with the commitment to maintain to 31st December 2023, for the period commencing 1st January 2023, DNV certified"

R. Bradley

Ana del Rey Ana del Rey (Sep 20, 2023 10:18 GMT+1)

Rachel Bradley Global Sustainability Manager, C&P Castrol – Strategy & Activation

Ana del Rey VP Castrol Strategy, Sustainability & Activation C&P Castrol – Strategy & Activation

This Qualifying Explanatory Statement (QES) contains all the required information on the carbon neutrality of the given subject. All information provided within this report has been reviewed by DNV Business Assurance Services UK Limited<sup>1</sup>, a third-party assurer. If provided with any information affecting the validity of the following statements, this document will be updated accordingly. This report will be made publicly available on Castrol's carbon neutral webpage: <a href="https://www.castrol.com/cneutral">www.castrol.com/cneutral</a>. The publicly available version will be redacted to protect commercially sensitive information and any internal milestones that underpin external aims.

Castrol's carbon neutral programme dates back to 2014 when its first carbon neutral brand, Castrol PROFESSIONAL, was launched. Over the 2014 – 2020 period, Castrol continued to grow its carbon neutral portfolio with the addition of Castrol VECTON, OPTIGEAR and passenger car oils in Europe, Russia and Japan. Prior to 2021, Castrol's carbon neutral programme was managed through 5 separate carbon neutral applications.

In 2021, Castrol re-established its carbon neutral products programme with the launch of its PATH360 Sustainability Strategy; expanding the size of its carbon neutral products portfolio to include lead brands in every space Castrol sells to, all products sold in the Australia, New Zealand, and Vietnam markets, all products that have achieved carbon neutral historically and some additional ad hoc product lines having significant sales within key geographies.

This is Castrol's second declaration of achievement of carbon neutrality for this combined portfolio of products. **Please see Annex D for a complete list of products in scope and their classification within this carbon neutral application.** As context, these products made up around 33% of Castrol's sales volume in 2022.

Castrol's carbon neutrality declaration and this accompanying QES have been reviewed and verified by an independent third party, DNV. Their Assurance Statement can be found in Annex B of this report.

<sup>&</sup>lt;sup>1</sup> DNV is one of the world's leading certification and assurance bodies, helping businesses assure the performance of their organisations, products, people, facilities and supply chains through certification, verification, and assurance.

## 1. TERMS & DEFINITIONS

100-year Global Warming Potential	Factor describing the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time NOTE: Carbon dioxide is assigned a GWP of 1, while the GWP of other gases is expressed relative to the GWP of carbon dioxide from fossil carbon sources. Global warming potentials for a 100-year time period are produced by the Intergovernmental Panel on Climate Change. <sup>2</sup>
Carbon	Carbon is used as shorthand for aggregated greenhouse gas (GHG) emissions, reported as carbon dioxide equivalents (CO <sub>2</sub> e). Throughout the report, the full term (CO <sub>2</sub> e) is employed. A full list of GHG emissions included in the inventory is provided in Annex C of this report
Carbon Credit	A generic term to assign a value to the carbon offset. One carbon credit is usually equivalent to one tonne of carbon dioxide.
Carbon Offsets	Discrete reduction in greenhouse gas emissions not arising from the defined subject, made available in the form of a carbon credit meeting the requirements of 9.1.2 of PAS 2060:2014 and used to counteract emissions from the defined subject. PAS 2060:2014 specifies that carbon offsets are acquired to compensate for residual greenhouse gas emissions arising from a defined subject, after taking emission reduction initiatives into account. Offsets are calculated relative to a baseline that represents a hypothetical scenario for what emissions would have been in the absence of the mitigation project that generates the offsets.
GHG	Greenhouse Gas refers to carbon dioxide ( $CO_2$ ), methane ( $CH_4$ ), nitrous oxide ( $N_2O$ ), sulphur hexafluoride ( $SF_6$ ), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). A full list of GHG emissions included in the inventory is provided in Annex C of this report
GHGP	Greenhouse Gas Protocol sets the standards to measure and report GHG emissions. Annex C of PAS 2060:2014 Table C.1 includes the GHG Protocol, Product lifecycle accounting and reporting standard as an example of a document providing methodologies appropriate for use in the quantification and reduction of GHG emissions. <u>Greenhouse Gas Protocol   (ghgprotocol.org)</u>
GHGP Product Standard	Greenhouse Gas Protocol Product Standard: <u>Product Standard   Greenhouse Gas Protocol (ghgprotocol.org)</u>

<sup>&</sup>lt;sup>2</sup> Taken from the Terms and definitions in PAS 2060:2014

IPCC Fifth Assessment Report	The Intergovernmental Panel on Climate Change (IPCC) provides an international statement on the scientific understanding of climate change <u>IPCC —</u> Intergovernmental Panel on Climate Change
I3P-1 (for third party)	The conformity assessment type as outlined in PAS 2060, in this case: Independent 3P certification - commitment
I3P-3 (for independent third-party certification – unified)	The conformity assessment type as outlined in PAS 2060, in this case: Independent 3P certification - unified (achievement of and future commitment to, carbon neutrality)
PAS 2060	Publicly available Specification for the Demonstration of Carbon Neutrality. PAS 2060:14 (referenced in this document) refers to the latest 2014 version of the document
QES (Qualifying Explanatory Statement)	Collation of evidence in support of the declaration of a commitment to carbon neutrality and/or the declaration of achievement of carbon neutrality, in compliance with PAS 2060 (as per PAS 2060:2014).

## 2. INTRODUCTION

## 2.1 Foreword

This Qualifying Explanatory Statement (QES) demonstrates Castrol's achievement of carbon neutrality for its PATH360 Carbon Neutral Products at 31st December 2022 in accordance with PAS 2060, with the commitment to maintain such achievement to 31st December 2023, for the period commencing 1st January 2023.

This QES provides details on how the carbon emissions of the products in scope were assessed, Castrol's carbon management plan inclusive of emission reduction initiatives and the carbon offset process used to demonstrate achievement of carbon neutrality. Castrol has been implementing carbon reduction activities in line with its carbon management plan but made the decision in its first Declaration of Achievement of carbon neutrality to offset the footprint of its products in scope as if they were unabated. This 2nd Declaration of Achievement will demonstrate the progress in Castrol's Carbon Reduction Plan (Section 5.2) including 10 manufacturing sites now powered by renewable electricity through the use of Renewable Electricity Certificates (RECs) at the end of 2022, 4 sites with solar panel installations, improvements in packaging emissions from the aggregate reduction in plastic and lower raw material production emissions through the optimization of product formulations. Any residual emissions have been offset through the purchase and retirement of carbon credits. A checklist of requirements to demonstrate conformance to PAS 2060:2014 and their respective location within the QES can be found in Annex A.

PAS 2060 Information Requirement	Information as it relates to Castrol Ltd
Entity making PAS 2060 declaration	Lubricants UK Ltd (hereafter referred to as "Castrol")
Individual responsible for the evaluation and provision of data necessary for the substantiation of the declaration including that of preparing, substantiating, communicating, and maintaining the declaration	Carolyn Bongard, Sustainability Accounting Manager
Subject of the declaration	Castrol's PATH360 carbon neutral products. See Annex D for a complete list of products in scope and their classification within this carbon neutral application.
Chosen consolidation approach (equity share, operational control, or financial control)	Operational Control

#### Table 2.1 - General Information

Characteristics of the subject	Castrol is a global lubricants manufacturing and marketing
	company offering a wide range of products and services
	across the automotive, industrial, marine and energy spaces.
	The subject of this carbon neutral declaration includes all
	products sold within a lead brand from each of these spaces.
	Some examples include EDGE in the passenger car motor oil
	space, VECTON for commercial vehicle engine oils, Industrial
	XBB and XBC products, Marine BIO RANGE, BRAYCO and
	TRANSAQUA energy products and OPTIGEAR in the wind
	space. With the addition of all products sold in Australia, New
	Zealand and Vietnam, the subject includes 37 unique product
	types across 6 spaces as can be seen in Annex D, Table D.2.
Rationale for the selection of the	Castrol is making this selection of products carbon neutral as
subject and boundary	part of its PATH360 Sustainability Strategy. Subsets of this
	portfolio have achieved carbon neutrality over the 2014-2020
	period, but Castrol has re-established its carbon neutral
	commitment in 2021 with the launch of this strategy and
	combined into one QES the existing carbon neutral ranges
	and several additional ones. This resulted in a significantly
	increased set of products which includes a lead brand in
	every space as well as all products sold in the Australia, New
	Zealand, and Vietnam markets. For ease, this group of
	products will be referred to herein as 'average Castrol
	product.' Please see Annex D for more details.
Conformity assessment type	I3P-3 Independent third-party certification –
	unified
Baseline date	1st Jan – 31st Dec 2021
(Date of first determined footprint)	
Achievement period for carbon	1st Jan – 31st Dec 2022
neutrality	
Commitment period for carbon	1st Jan – 31st Dec 2023
neutrality	

## 2.2 PAS 2060 Carbon Neutrality

Castrol will demonstrate carbon neutrality as set out in PAS 2060:2014 using an independent 3rd party certification in accordance with 10.3.2 of PAS 2060:2014. For the application period following the baseline date, declaration I3P-1 from Annex A of PAS 2060:2014 has been used. For this second application period and all subsequent application periods with an unchanged subject, declaration I3P-3 modified as per A.2 of PAS 2060:2014 shall be used. In the event that material change to the subject occurs, the sequence shall be re-started on the basis of a newly defined subject.

Castrol is following the timeline for carbon neutrality in accordance to Figure 2.1 - Carbon Neutral Declaration Periods. In 2021, Castrol demonstrated commitment to carbon neutrality. This aligned well with the launch of Castrol's PATH360 Sustainability Strategy. In 2022, Castrol submit its first Declaration of Achievement of carbon neutrality with the commitment to maintain ongoing. This is now Castrol's second Declaration of Achievement of carbon neutrality with the commitment to maintain ongoing for this selected group of products. The baseline period remains 2021<sup>3</sup> (based on calendar year 2020 data), the subject has been defined (as described in Table 2.1) and its carbon footprint quantified. The QES is officially released to the public after the independent third-party assurance of Castrol's QES and will be updated accordingly to reflect any changes and actions that could affect the validity of the declaration of achievement to maintain.

A carbon management plan has been developed and implementation initiated to reduce emissions across the lifecycle of Castrol's products. The balance of the emissions for the second achievement period have been offset through the purchase and retirement of carbon credits. See Section 5 for details on Castrol's carbon management plan and Table 6.1 for details on the projects associated with these carbon credits and the numbers of credits that have been purchased and retired.

<sup>&</sup>lt;sup>3</sup> 2021 is still the baseline period, but a re-baseline exercise was conducted within the 2021 model to ensure a likefor-like comparison when accounting for improved quality of data within the 2022 model. See Section 4.4 for further details.





## 2.3 Boundaries of the Subject

The declaration of carbon neutrality covers GHG emissions relating to all of the activities that are material for the subject. The subject includes over 1,000 products variants and 5,300 stock keeping units (SKUs) sold in 53 markets across the globe. Having the % system loss for each of the product types associated with these product variants and the country detail for where products are sold allows for losses-in-use and end-of-life treatment assumptions to be applied at the SKU level. Together, this makes it practical to conduct 'cradle-to-grave' lifecycle analysis in accordance with the requirements of the Greenhouse Gas Protocol Product Life Cycle Accounting and Reporting Standard (GHGP Product Standard). The system boundary considered in assessing the carbon footprint of these products is described in Figure 2.2.

Figure 2.2 – Process Map



(T = transport)

## 3. QUANTIFICATION OF CARBON FOOTPRINT

## 3.1 Standard Chosen and Emissions Sources

The GHGP Product Standard was used to quantify the GHG emissions associated with the subject. This method was chosen as it provides an internationally recognised approach to the calculation of product  $CO_2e$  footprints and meets the requirements of PAS 2060 for the substantiation of GHG emissions (PAS 2060:2014 5.2.2 to 5.2.4). The GHGP Product Standard was applied in accordance with its provisions and the principles set out in PAS 2060. The product  $CO_2e$  footprints have been prepared for Castrol by a specialist third party (ERM).

GHG emissions that are accounted for in the study are based on the 100-year Global Warming Potential figures published in Table 2.14 of the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report  $(2014)^4$  and include those required by Section 6.2 of the GHGP Product Standard, which specifies emissions to and removals from the atmosphere of: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur hexafluoride (SF<sub>6</sub>), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). A full list of GHG emissions included in the inventory is provided in Annex C of this report.

100% of the Scope 1 and 2 GHG emissions relevant to the product are included in the carbon footprint in Table 3.1 below and the quantified carbon footprint covers at least 95% of the Scope 1, 2 and 3 GHG emissions from the subject. Sources of biogenic carbon in the average Castrol product system are limited to (1) the production of selective ingredients and their combustion in use or at end of life, and (2) cardboard and wood packaging materials, which are identified as negligible. CO<sub>2</sub> emissions associated with the combustion of ingredients containing biogenic carbon are excluded (only fossil CO<sub>2</sub> emissions are considered), but the impact from the other sources is included. Therefore, the carbon footprint results from this study do not provide separate reporting of biogenic carbon emissions, but their benefits are still apparent due to reduced emissions and no weighting factors have been included for delayed emissions. Offsetting has not been included in calculations and no avoided emissions have been included in calculations. Where GHG emissions have been estimated, these have been determined based on a conservative approach that precludes underestimation.

<sup>&</sup>lt;sup>4</sup> IPCC — Intergovernmental Panel on Climate Change

## 3.2 Emissions Profiles of the Subject

Table 3.1 – Cradle-to-grave GHG Emissions per litre of product (Carbon Neutral KPI)

Inventory results: kg CO <sub>2</sub> e per unit of analysis			
Product group description	GHG	Emissions per litre of product	
Global (products in scope for the Castrol Carbon Neutral Portfolio)		Kg CO <sub>2</sub> e per litre of average Castrol product from the Castrol Carbon Neutral Portfolio	

Using 2021 calendar year data, the average Castrol product from the Castrol Carbon Neutral Portfolio has a per litre carbon intensity of  $\bigcirc$  Kg CO<sub>2</sub>e/L. The total GHG emissions of Castrol's Carbon Neutral Portfolio based on 2021 sales volume and product intensity at the SKU (most granular level) is 1,533,416 tonnes of CO<sub>2</sub>e. Applying the same SKU level intensities to the 2022 sales volume of  $\bigcirc$  litres equates to 1,555,319 tonnes of CO<sub>2</sub>e. This calculation is explained further in Section 6 as part of the Carbon Offset Program.

Figure 3.1 - Value (% of total CO<sub>2</sub>e) by Life Cycle Stage



Table	32.	Descri	ntion	of GHG	emissions
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Boundary setting	
Life cycle stage definition	
Material acquisition and pre- processing	Raw material extraction and processing to produce base components for use in the average Castrol product

	production process for all products in scope for the Castrol Carbon Neutral portfolio.
	The following processes are included within the boundary of this life cycle stage:
	<ul> <li>Production of base oils, comprising extraction of crude oil; transportation of crude oil to refining; and refining of crude oil to produce base oil and co-products, with burdens allocated to base oils on a mass basis</li> <li>Production of additives, comprising production of chemicals and processing to make average Castrol product additives and viscosity modifiers, and associated transport; and</li> <li>Production of packaging materials (plastics, steel, wood), comprising extraction and transportation of raw materials; processing to packaging base materials; and fabrication of packaging products.</li> </ul>
	The following processes are not included within the boundary of this life cycle stage.
	• Capital goods and infrastructure (i.e., manufacture and maintenance of buildings and machinery), which are considered to be negligible in relation to one litre of average Castrol product
Production	Blending of base components (base oils and additives) to produce average Castrol product and filling into product packaging (plastic bottles, steel drums, Intermediate Bulk Containers (IBCs), etc.) for all products in scope for the Castrol Carbon Neutral portfolio.
	The following processes are included within the boundary of this life cycle stage:
	<ul> <li>Incoming transport of average Castrol product ingredients and packaging to Castrol sites</li> <li>Blending operations for production of average Castrol products at Castrol sites</li> <li>Filling to packaging (including plastic bottles, steel drums, bulk packaging, etc.) of average Castrol products; and</li> <li>Management of wastes and emissions from Castrol sites producing average Castrol products worldwide.</li> </ul>

	The following processes are not included within the boundary of this life cycle stage.	
	<ul> <li>Capital goods and infrastructure (i.e., manufacture and maintenance of buildings and machinery), the burdens of which ERM consider to be negligible when allocated among the large quantities of lubricant products manufactured during their operational lifetime; and</li> <li>Personnel activities (e.g., commuting to and from work).</li> </ul>	
Distribution and storage	Distribution of packed products in scope for the Castrol Carbon Neutral portfolio from Castrol blending sites to customers (e.g., dealerships and retailers) comprising:	
	<ul> <li>Transportation by third party fleet to distribution hub in the market country; and</li> <li>Transportation by in-country third party carrier from distribution hub to customer (e.g., car dealerships).</li> </ul>	
	<ul> <li>of this life cycle stage.</li> <li>Capital goods and infrastructure (i.e., manufacture and maintenance of buildings and machinery), which are considered to be negligible in relation to one litre of average Castrol product</li> <li>Storage at distribution warehouse. Average Castrol products are stored at ambient temperature and do not require any additional treatment for storage. ERM considers other storage impacts, such as energy for lighting, to be negligible when allocated across the many different products that are stored within warehouses and the relatively widespread use of energy efficiency measures, such as movement sensors, to minimise lighting requirements in such environments.</li> <li>Personnel activities (i.e., commuting to and from work).</li> </ul>	
Use	The Castrol Carbon Neutral portfolio has several use applications (e.g., engine oils, gear oils, greases, coolants and cleaners) across several product categories (e.g., automotive, marine, energy, and industrial).	
	In these application groups, Castrol products are used to facilitate the efficient running of, for example, engines, equipment, and machinery. They are not typically consumed during use, although there is inevitably some	

	average Castrol product loss through leakage or, where combustion is applicable, with the fuel. Leakage and use rate percentages have been applied to these cases and it is assumed that the percentage leaked or combusted degrades to carbon dioxide. In contrast, some applications (e.g., greases, marine lubricants, and cleaners etc.) have a high loss rate in use. In these cases, it is assumed that 80% to 100% is lost and eventually degrades into carbon dioxide.
	Use of average Castrol product includes the following:
	<ul> <li>Filling of product application system (e.g., vehicles, equipment, and machinery) with average Castrol product</li> <li>Leakage of average Castrol product during use</li> <li>Where applicable, combustion of average Castrol product with fuel during use</li> </ul>
	The following processes are not included in the boundary of this life cycle stage.
	<ul> <li>Capital goods and infrastructure (i.e., manufacture and maintenance of buildings and machinery), which are considered to be negligible in relation to one litre of average Castrol product.</li> <li>Draining of used average Castrol product from product application system as this is a manual operation.</li> <li>Personnel activities (e.g., commuting to and from work).</li> </ul>
	Also not included within the boundary of this lifecycle stage nor within any life cycle stage within the boundary of the subject is the beneficial impacts of the product in use (e.g., fuel economy, reduced friction and durability/extended drain, etc.).
End-of-life	Depending on the loss rate during the use phase, there will be different end of life considerations. For applications with 100% loss (e.g., greases and marine), there is no further end-of-life treatment as it is assumed the average Castrol product is 100% released into the environment during the use phase.
	In contrast, for average Castrol products which do not have 100% loss during the use phase, the used average Castrol products can be re-refined, incinerated for energy recovery, incinerated without energy recovery, or landfilled, the packaging must also be treated. It is

assumed that no improper disposal (e.g., dumping to land) occurs for products sold via 'dealership' marketing channels. For products sold via 'retail' marketing channels it is assumed that improper disposal occurs for the percentage of oil not collected for the specific market; the remaining oil in the 'retail' channel is assumed to be disposed following the routes described above in the quantities specific to the market country. The following processes are included in the boundary of this life cycle stage:
<ul> <li>Transportation of used average Castrol product to a waste management facility</li> <li>Used average Castrol product incineration with and without energy recovery, landfill, or re-refining; and</li> <li>Treatment of waste packaging to recycling, incineration with energy recovery, incineration without energy recovery or landfill.</li> </ul>
In line with the recycled content method (Chapter 9 of the GHG Protocol Product Life Cycle Accounting and Reporting Standard, 2011), the following processes are not included in the boundary of this life cycle stage:
<ul> <li>Processes that transform waste to a useful material in another process (e.g., re-refining of used oil and recycling of plastic).</li> </ul>

## 4. DATA METHODS

## 4.1 Data Sources

Data used for this footprint study was derived from a mix of primary and secondary sources. Where possible, primary data was used. Secondary data was used only where primary data was not available or where the impact on the carbon footprint result was nominal.

Primary data were sourced for all Castrol activities, comprising product specifications and formulations; operational data at blend sites; production output from blend sites; sales data in market countries; packaging material inputs; incoming material transport distances; and distribution modes of transport. Primary data were also sought from several of Castrol's suppliers for base oil, additives and primary packaging as part of this and previous GHG inventories. However, primary data were not received in relation to all data requests. Where primary data were lacking, secondary data were used to fill gaps based on documented assumptions.

Distribution routes and distances were estimated based on the regional location of the blending site where a product is manufactured and the regional location of Castrol warehouse facilities in the market country.

Secondary data were sourced to define appropriate use and disposal scenarios and for all other activities associated with the life cycle of average Castrol product, comprising: GHG emission factors, which were sourced from reputable published databases; secondary and ancillary packaging materials; and average country specific waste management rates for used oil and packaging materials.

## 4.2 Data Quality and Uncertainties

Data quality assessments were undertaken for all activity data and emission factor data. Activity data was assessed for the following data quality criteria, geography, time period, and reliability. Emission factor data were assessed for the following data quality criteria, technology, geography, time period, completeness and reliability. For each data quality criterion, a score was assigned on a scale of 1 to 4 (1 being poor; 4 being good). A single data quality score was calculated as the simple average of all five representativeness categories (equal weighting for each category). The quality of the overall dataset was appraised as a percentage of the total carbon footprint result that relies on data is appraised as 'poor' (<1.5), 'fair' (1.5 – 2.5), 'good' (2.5 – 3.5) and 'very good' (>3.5)

The following table provides an overview of the Activity Data Quality Appraisal for all products in scope:

Data Quality Appraisal - Activity Data	% contribution to total GHG footprint
Poor	0.00%

#### Table 4.1 – Activity Data Quality Appraisal

Fair	0.00%
Good	29.83%
Very good	70.17%

The following provides an overview of the Emission Factor Data Quality Appraisal for all products in scope:

Table 4.2 – Emissions Factor	<sup>r</sup> Data	Quality	Appraisal
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Data Quality Appraisal - Activity Data	% contribution to total GHG footprint
Poor	0.00%
Fair	0.00%
Good	44.60%
Very good	55.40%

The following identifies specific areas of uncertainty in the product carbon footprint results:

<u>Raw material inputs</u> – for raw material inputs for which primary data were not received, secondary data were used. The nature of key raw material inputs (base oil and additives) is such that there is potentially a high degree of variability between suppliers and consequently the GHG impact can vary accordingly. Given the contribution to total GHG emissions from the production of raw materials, the assumptions made relating to raw material impacts have the potential to have a significant effect on the overall result. In the absence of supplier-specific data, the average-data method has been applied as recommend by the GHG Protocol Scope 3 Guidance document. In addition, Castrol continues to request supplier-specific data from its key suppliers to reduce the reliance on secondary data and improve the variability of raw material production emissions.

<u>End-of-life management</u> – waste management rates are assumed based on national/regional averages. Waste management rates can vary significantly between different countries in the same region or between different areas in the same country. Similarly, given the contribution to total GHG emissions from the end-of-life management, the assumptions made relating to waste management rates have the potential to have a significant effect on the overall result. See section 4.3.1 for further information on key assumptions and uncertainties.

## Improvements to data quality (2020 to 2021)

Both activity data quality and emission factor data quality have improved since the first GHG inventory of 2020 data. Increased granularity in the primary packaging data provided by Castrol reduced the scale of packaging extrapolations required, largely driving the following improvements to activity data quality:

Data Quality Appraisal -	% contrib	ution to total GHG footp	rint
Activity Data	2020	2021	Difference
Poor	0.00%	0.00%	0.00%
Fair	3.51%	0.00%	-3.51%

#### Table 4.3 – Activity Data Quality Comparison to 2020 Baseline

Good	35.54%	29.83%	-5.71%
Very good	60.95%	70.17%	9.22%

Emission factor data quality also improved significantly, primarily due to an increase in supplier-specific emission factors. These improvements are summarised below:

Data Quality Appraisal –	% contribution to total GHG footprint				
Emission Factor Data	2020	2021	Difference		
Poor	0.00%	0.00%	0.00%		
Fair	5.21%	0.00%	-5.21%		
Good	73.98%	44.60%	-29.83%		
Very good	20.80%	55.40%	34.60%		

#### Table 4.4 – Emissions Factor Data Quality Comparison to 2020 Baseline

## 4.3 Key uncertainties, assumptions, estimations, and allocations

## 4.3.1 Scenario Uncertainty

**Blending Locations** - In some cases, data to link the production of a formulation at a specific blend site and its subsequent sale to an end market were not available. Therefore, some assumptions were required to map the formulation through the life cycle. Castrol sales data provide volumes sold to each end market, broken down by product code. Product codes were then mapped to formulation codes and blend sites. Where formulations were blended at more than one blend site, a blend site was selected based on geographic proximity to the end market. The assumption for blending site location only significantly affects impacts associated with blending and distribution processes. Given the availability of data and the relatively small contribution to the total footprint from blending and distribution, this is considered a reasonable approach.

**Use Profile** – Average Castrol product are used in different product application systems to enhance the intended application system efficiency and are not typically consumed by the application system.

Average Castrol product are not intended to be consumed by the product application system. However, depending on the application there is either 100% direct loss (e.g., greases and marine), leakage of fixed % of the product, as well as unintended combustion (where applicable) with fuel in the product application system. Information relating to the quantity of average Castrol product that is lost, leaked, or is burned with fuel is limited. Therefore, in order to remain conservative, it is assumed the following:

- 100% direct loss: degrades completely to carbon dioxide.
- Leakage of fixed % of product and/or combustion: assumed 100% combusted (i.e., incinerated without energy recovery).

Data relating to the proportion of average Castrol product that leaks or is combusted (where applicable) with fuel is taken from both Castrol technology experts and Kline (2010), 'Global Used Oil 2009: Market Analysis and Opportunities.<sup>5</sup> This report from Kline is the only known industry report to assess % system

<sup>&</sup>lt;sup>5</sup> Current Kline (2019) is not applied due to ambiguity of information and lack of details on methodology

loss by product application type. Subsequent reports have been issued by Kline in 2016, 2019 and 2020, but these reports do not include a comparable global average system loss% by product type. The data from this report was reviewed by Castrol and adjusted accordingly to reflect Castrol's knowledge on product application systems in the market.

**End of Life** – For products which are not 100% directly lost during the use phase, the average Castrol product can be drained from the product application system for end-of-life treatment.

Following the drainage of used product from the product application system, it is assumed a fixed % of used product is collected by a reputable waste contractor for management. At end-of-life, used oil can be recycled (requiring a re-refining process to remove impurities and produce a re-refined average Castrol product); incinerated with recovery of energy; incinerated without recovery of energy; or landfilled. The proportion of used average Castrol product following each waste management route is estimated, based on country-specific or region-specific average rates.

**Sales Data** – The sales data which is pulled through Power BI at the Country/Channel/SKU level to calculate the product carbon intensities varies from the financial reporting data by 0.3% for the 2022 Achievement Period. Castrol's Carbon Neutral product range is ~33% of the sales portfolio and therefore this variance accounts for less than 1% of total, making it reasonable to rely on this data source.

## 4.3.2 Parameter Uncertainty

The model contains complete referencing of all GWP factors. The sources are:

- 2021 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting for UK grid electricity, liquid and gaseous fuels and freight transport.
- Ecoinvent 3.8.
- Confidential supplier data; and
- 2021 International Energy Agency (IEA) grid factors.

## 4.3.3 Model Uncertainty

Not applicable. Material issues relating to uncertainty are covered under parameter and scenario uncertainty.

## 4.3.4 Allocation

**Production of base oils -** Impacts from crude oil refining have been allocated to base oil and co-products on a mass basis. As per Chapter 9 of the GHG Product Protocol, allocation has been based on the underlying relationship between the quantity of the co-products and quantity of emissions generated. Refining of crude oil results in several co-products, none of which can be assumed to be the primary reason for refining. It is therefore considered reasonable to allocate emissions on a mass basis, assigning impacts relative to the quantity (by mass) of each co-product output.

**Incineration with energy recovery (use of used oil as fuel)** - Cut-off approach has been applied for impacts from incineration at end-of-life with energy recovery as per the direction made in Chapter 9 of the GHG Product Protocol. This accounts for the use of used average Castrol product as a fuel for the generation of heat and electricity and is reflected in the applied emission factor (0 kg CO<sub>2</sub>e per kg of used oil). The burdens associated with incineration are allocated to the user of the energy recovered (i.e., the next life cycle). Emissions associated with energy recovery processes are already included in electricity grid mix datasets, so these have been omitted to avoid double counting these burdens.

**Incineration without energy recovery** - In this case, the waste is not incinerated for a useful purpose and the associated emissions are allocated to the average Castrol product system (e.g., incineration of used oil without energy recovery).

**Recycling/re-refining at end-of-life** - The cut-off approach has been used to account for recycling of materials at end-of-life. All impacts associated with recycling processes (e.g., cleaning, sorting, chipping) are allocated to the system using the recycled material as input (i.e., the next life cycle). This method has been applied to all materials that are recycled at end of life.

In this inventory, recycling relates to the end-of-life stage and refers to used oil and packaging materials. It is reflected in the relevant emission factors for recycling at end of life (all 0 kg  $CO_2e$  per kg of waste):

- Used average Castrol product recycling (i.e., re-refining) 0% of re-refining process allocated to Castrol system and 100% allocated to system that uses re-refined oil; and
- Packaging materials 0% of recycling processes allocated to Castrol; 100% allocated to system that uses recycled materials.

**Site operational data -** Castrol's blend sites typically produce more than one type of product. However, the process for blending and filling is comparable regardless of product. Therefore, total site operational data have been allocated to products in scope for the Castrol Carbon Neutral portfolio on a mass basis.

Displaced emissions and removals using the closed loop approximation method - Not applicable.

## 4.3.5 Inclusions (External to the boundary)

While Castrol has chosen 'operational control' as its consolidation approach, it has identified and included within this QES, 4 products being manufactured and sold by a non-operated joint venture in Argentina. Castrol is choosing to include these product variants as they fall under 2 of the lead brands where Castrol is claiming carbon neutrality for 'all products sold'. The 2022 sales, 91,038 L, while insignificant in volume when compared to the balance of the portfolio (0.01%) have been used to estimate GHG emissions of 186 t  $CO_2e$  (as per the 7-step process described in Section 6 of this document) and the required equivalent offsets have been included in Table 6.1.

## 4.4 Rebaseline of the 2020 GHG Product Inventory

Changes were made to the base inventory due to improvements in data available as well as the identification of some method changes. These are summarised below:

Incorporation of more granular datasets:

Supplier specific emission factors used during raw material acquisition and processing stage.

- More granular primary and secondary packaging data available.
- Water content and biogenic content included during use and end of life stages.

#### Method changes

- Errors in oil raw material and packaging transport calculations have been corrected.
- o Errors in distribution calculations have been rectified.

The original base inventory calculated the GHG emissions per L of average Castrol product to be 2.07 kg CO2 eq per litre. The re-baseline of this inventory increased this total by 0.07 kg CO2 eq to 2.14 kg CO2 eq. This increase in the baseline requires 36,485 tonnes of additional offsets to be purchased and retired for the 2021 period. Table 6.1 in the 2021 Achievement QES will be updated to reflect these additional offsets.

## 5. CARBON MANAGEMENT PLAN

## 5.1 Commitment

Castrol is committed to achieve carbon neutrality of the subject for the period of 1st January 2023 to 31st December 2023 in accordance with PAS 2060:2014. This commitment can be broken down as follows:

- Offset GHG emissions for the achievement period based on 2022 actuals sales data; completed in early 2023.
- Continue to implement its carbon reduction plan during the commitment period.
- Commit to an offset program for the remaining GHG emissions in line with PAS 2060:2014.

## 5.2 Carbon Reduction Plan

Castrol's carbon reduction plan is a global approach encompassing activities across Scope 1, 2 and 3 emissions in support of its aim to halve the net carbon intensity of its products sold by 2030 or sooner, vs the 2019 baseline (measured in 2020). Castrol's carbon reduction activities are not limited to its carbon neutral portfolio, but the impact of its carbon reduction activities are assessed in relation to both the carbon neutral portfolio and the overall carbon footprint (Scope 1, 2 and 3 GHG emissions). While Castrol has not set a specific reduction target for its carbon neutral portfolio, carbon reduction activities are assessed for their impact on the carbon neutral portfolio in order to ensure a year-on-year reduction in the carbon intensity of average Castrol product. Castrol measured its corporate carbon footprint for the first time in 2020 and it has used the insights from that assessment to inform a key focus area of Castrol's PATH360 sustainability strategy: reducing carbon. In addition to assessing the scale and materiality of Scope 1, 2 and 3 GHG emissions and the opportunities for reductions within them, Castrol has transformed its organisational structure by developing a sustainability squad made up of a series of workstreams focusing on the key categories across the lifecycle of Castrol's products. Leveraging agile ways of working, digital platforms and skills, and the collaboration of sustainability leaders across multiple sectors, Castrol continues to pursue activities that directly reduce and indirectly influence its carbon emissions as well as exploring options to accelerate its progress towards its aims.



#### Figure 5.1 – Castrol's Corporate GHG Emissions Inventory and Reduction Opportunities

After having set the baseline, strategy, ambition, ways of working and people, Castrol has built a roadmap by lifecycle category to measure the progress against its aims and identify interventions as appropriate.

To reduce carbon emissions within the raw materials Castrol purchases, the focus is on three different activities. Firstly, the Castrol Technology team looks for lower carbon footprint materials as a design-in approach to develop new products in select geographies. Secondly, within the current product portfolio, Castrol is working to optimize formulations by choosing lower carbon options, without compromising their performance. Thirdly, Castrol is working in collaboration with its suppliers to understand their supplier-specific product carbon footprints, what they are doing to reduce their  $CO_2e$  emissions and to support them on their carbon reduction plans where possible. Castrol has also modified its RFQ process to include a sustainability questionnaire in an effort to benchmark its suppliers.

Castrol has 10 manufacturing sites on renewable energy certificates and 4 sites utilizing solar-sourced electricity at the end of 2022. In addition to furthering progress towards renewable energy, Castrol's roadmap also includes replacing fuel oil and diesel combustion with natural gas, reducing blending temperature and heating of raw materials where possible, and implementing smart energy management systems and equipment upgrades to improve efficiency and conserve energy.

Under the packaging category, Castrol's strategy to reduce, reuse and recycle plastic within its value chain, are all in support of its aim to halve its plastic footprint per litre by 2030, vs the 2019 baseline (measured in 2020). Within the reduce plastic category, Castrol is focusing on light-weighting containers, looking for alternative materials and formats and increasing use of recycled resin. With Project Highlander, Castrol has reduced the amount of plastic per bottle in small packs resulting in 4k tonnes of plastic savings in 2022 vs 2019. Highlander has been implemented in 10 markets across Asia and Africa with a European implementation rollout extending through 2023.

Managing plastic at end of use is a challenge for Castrol as the oil contaminates the packs, meaning it cannot be recycled in standard plastic waste streams. As well as being messy, contaminated plastic produces a recycled resin that has undesirable color and odor properties for consumer product use and can have variable quality. However, Castrol does participate in collection schemes where segregated recycling exists and, in the US, have joined the National Lubricant Container Recycling Coalition focused on establishing solutions for post-consumer recovery and recycling of plastic lubricant containers for use in industrial products.

Losses in use is one of the more challenging life cycle stages to reduce, particularly when it comes to the use profile or % system loss of lubricant during its functional life. By first understanding the % system loss for the different types and applications of products Castrol makes (oils, lubricants, fluids and greases across the automotive, industrial, marine and energy spaces), Castrol is now evaluating future trends and the impact this may have on product mix and the associated GHG emissions. Castrol products are also formulated to meet challenging industry and Original Equipment Manufacturer (OEM) specifications, ensuring continued research and development to improve volatility (i.e., the evaporation loss of lubricants in high-temperature service.) In addition, Castrol is exploring opportunities to reduce the fossil carbon content of the product, especially where % system loss is high.

At the end-of-life stage, Castrol is evaluating its participation and partnership strategy around end-of-life treatment and used oil collection rates. Since the majority of Castrol's sales are through distributors and workshops and therefore several steps removed from the end user, Castrol seeks to influence in order to drive change in this area. Castrol is starting by working with its OEM partners to re-direct collected oil to re-refining therefore keeping it in use for longer.

Castrol has leveraged its digital platforms and skills to be able to track the carbon intensity for its products, identify future areas for carbon reductions and allocate and action the required resources to mitigate any potential risk to meet the reduction plan. Castrol assesses its-performance against its carbon management plan at a minimum of once per annum, in line with the annual product carbon footprinting cycle.

The initiatives within Castrol's carbon management plan are reviewed annually as part of its Sustainability Plan execution and progress against key activities are reviewed with leadership. These periodic assessments of performance against the plan provide opportunity to implement corrective action aiming at targets being achieved.

## 5.3 Carbon Reduction Delivered in the Achievement Period

Figure 5.2 demonstrates the net change by life cycle stage where the impact of formula optimization initiatives on raw material production emissions and improvements in blending & filling through the transition to renewable electricity and solar power are starting to come through in the results. Primary packaging emissions have improved slightly from the lightweighting of plastic, but a more significant reduction is anticipated once Project Highlander completes its rollout by the end of 2023. The increase in losses in use is driven by the product type mix, primarily in Australia/New Zealand. The reduction in End-of-Life emissions is largely within the Europe & Russia PCO category and due to the change in collection rate assumptions from Kline's Global Used Oil and Re-refined Lubricants Report<sup>8</sup>,2022 vs the prior version published in 2019.



## Figure 5.2 – Change in Average Product Carbon Intensity vs 2021 Rebaseline

'2022 Sales from Additional Products' includes all US volumes under the core EDGE brand (i.e., excluding EDGE Professional which was in scope from 2021) and China volumes under the POWER1 brand. These volumes fall under existing lead brand categories within the carbon neutral portfolio, but they were not included in the 2021 lifecycle assessment process nor were the associated tonnes offset. Also new for 2022 was the inclusion of the Magnatec brand in India. The impact of these additional product variants do not represent a material change to the subject (+0.01 kg  $CO_2e/L$  equating to a 0.03% increase in average product carbon intensity) and therefore the carbon neutral sequence does not require a re-start on the basis of a newly defined subject.<sup>9</sup>

<sup>&</sup>lt;sup>7</sup> The 2021 Rebaseline represents a reassessment of the 2021 Castrol Carbon Neutral Products model where improvements in primary data and methodology incorporated into the 2022 version of the model were updated in the 2021 version to create a like-for-like comparison. See Section 4.4 for further details.

<sup>&</sup>lt;sup>8</sup> Global Used Oil and Re-Refined Lubricants: Market Analysis and Opportunities, Kline & Company Inc, 2022
<sup>9</sup> This is in accordance with Section 5.1.2 of PAS 2060:2014 and has been discussed and agreed with the Independent 3<sup>rd</sup> Party verifier prior to initiating this assurance application.

**'2022 Sales Mix Impact'** is the result of multiplying the 2022 sales volume by the average product carbon intensity from the 2021 Rebaseline model. This is done on a weighted average basis by carbon neutral category and excludes the impact of the 2022 Sales from Additional Products. The sales mix has a +0.03 kg CO2e/L impact on the 2021 Rebaseline average product carbon intensity, but the combination of carbon reductions, the increase in losses in use due to product type mix and the improvement in collection rates in Europe yields a net reduction of 0.04 kg CO<sub>2</sub>e/L vs the 2021 Rebaseline.

## 5.3.1 Key Assumptions and Uncertainties in Identified Carbon Reductions

- Formula Optimization reductions are estimated based on the change in raw material production emissions when comparing the previous formulation (ingredients and ratios) to the new formulation and then multiplying the carbon intensity reduction by the prior year's sales volume.
- Operations activities to reduce CO<sub>2</sub>e emissions within Castrol-owned blend plants are assessed on a project-level basis. Improvements can come from a combination of changes in source of energy (e.g., from grid electricity to solar, fuel oil to natural gas) or from a reduction in energy consumption. In order to account for these reductions within the carbon neutral portfolio, a ratio of carbon neutral sales volume to total sales volume is applied.
- Packaging / Highlander carbon and plastic reductions from the implementation of Project Highlander are currently based on the amount of bottles purchased by market and the approximate date of launch (lubricant filled into the new, lighter bottle) for that market. Once Project Highlander is fully implemented across all planned geographies (by end 2023), carbon and plastic reductions can be tracked with the sales data file where stock keeping units sold have 'Highlander' referenced as the pack shape. Sales volume will be converted to bottles sold and multiplied by the difference in bottle weights before and after Highlander implementation. The sales data file also has the carbon neutral category designation, allowing the ability going forward to track benefits of this project within the carbon neutral portfolio. In the meantime, as carbon neutral volume is ~33% of the overall sales volume, 33% of the overall estimated reductions have been included in the carbon reduction plan for carbon neutral products.

## 6. CARBON OFFSET PROGRAM

Since the inception of its carbon neutral programme in 2014, Castrol has been ordering its carbon credits<sup>10</sup> from bp Target Neutral. The purchase of these credits supports and contributes to a portfolio of carbon reduction, avoidance and removal projects around the world. Some of these projects have additional benefits that support the UN Sustainable Development Goals, improving the lives of millions of people through better health, decent work, training and gender equality.

These credits have been purchased from sources based on schemes with criteria intended to ensure:

• The credits purchased represent genuine, additional GHG emissions reductions; and

• the projects involved in delivering offsets meet the criteria of additionality, permanence, leakage, and double counting.

Castrol only purchases credits that are independently verified against methodologies from leading carbon offset programmes such as the CDM and VCS. Offset credits issued under these programmes are assigned a unique serial number once they are verified which allows them to be sold onto the voluntary carbon market. When making a claim against these credits, Castrol then retires the credits in a public registry under these programmes and retains the retirement certificate as proof of cancellation, including the unique serial number of the credits. This process prevents any "double counting" or "double selling" of offset credits, where more than one party claims that a retirement was made on their behalf.

The purchase of offsets via these schemes also guarantees that the credits have been verified by an independent third party, only issued after the emission reductions had taken place, and were retired within 12 months from the date of the declaration of the achievement. These credits are supported by publicly available project documentation, with references provided and stored and retired in an independent and credible registry.

## 6.1 Offset program for the 2022 Achievement Period

Credits for the 2022 Achievement Period were purchased and retired through bp Target Neutral (<u>www.bptargetneutral.com</u>) based on a combination of:

- $\circ$  2022 Sales within the carbon neutral portfolio 1,555,319 t CO<sub>2</sub>e
- 2022 Argentina (bp Non-Operated Joint Venture) Sales 186 t CO<sub>2</sub>e (Section 4.3.5)

Resulting in a total of 1,555,506 t  $CO_2e$ . See Table 6.1 for further details on the projects associated with these credits.

To determine the amount of offsets required for the 2022 period, Castrol uses a 7-step process to assign the average product carbon intensity (as assessed by ERM and based on 2021 sales data) for 2022

<sup>&</sup>lt;sup>10</sup> As stated in the Terms & Definitions on p4, a carbon credit is defined as a discrete reduction in greenhouse gas emissions not arising from the defined subject, made available in the form of a carbon credit meeting the requirements of 9.1.2 of PAS 2060:2014 and used to counteract emissions from the defined subject.

volumes sold. For step 1, where there is a direct match at the Country/Channel/SKU level (most granular level), this average product carbon intensity is multiplied by its respective sales volume. In 2022, there was a direct match for 72% of the sales volume at this level.

In the instances where a new Country/Channel/SKU has been introduced (i.e., sold) within an existing carbon neutral category but after the carbon footprinting period has closed, steps 2-7 have been applied to provide the most accurate estimate of product carbon intensity possible:

Step 1: use the average product carbon intensity at the Country/Channel/SKU level, else

Step 2: use the Product Variant average carbon intensity for that Country and Channel, else

Step 3: use the SKU global average carbon intensity for that Product Variant, else

Step 4: use the Product Variant global average carbon intensity, else

Step 5: use the global average product carbon intensity for that carbon neutral category, else Step 6: use the global average product carbon intensity for that product brand, and finally if still no matches

Step 7: use the average product carbon intensity for the carbon neutral portfolio

The new Country/Channel/SKU would then be included in the carbon foot printing process from the following application period.

	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7	
Carbon Intensity Assessment	Carbon intensity by SKU Market Channel	Carbon intensity by PV Market Channel	Carbon intensity by SKU Global Average	Carbon intensity by PV Global Average	Carbon intensity Global Average by Carbon Neutral Category	Carbon intensity Global Average by Product Brand	Carbon intensity Global Average	Carbon Intensity 2022
Volume ML	1,530	268	265	37	3	28	1	2132
%	72%	13%	12%	2%	0%	1%	0%	100%
Cumulative %	72%	84%	97%	99%	99%	100%	100%	

If Castrol can demonstrate evidence where tonnes of  $CO_2e$  relative to this application period have been previously offset, it will include this in the calculation of required offsets. This would include Castrol's Scope 1 and 2 emissions which has its own carbon neutral commitment and application, as well as emissions from purchased raw materials made carbon neutral at the gate-to-gate or cradle-to-gate level.

## 6.2 Offset program for the 3rd Application Period

For the 3rd application period, 1st January 2023 – 31st December 2023, Castrol will repeat the same process as followed for the 2nd application period but using 2023 volumes sold and the average product intensities from the 2023 model (based on 2022 sales data). Castrol will notify bp's Low Carbon Trading

team<sup>11</sup> of the volume of credits required once the emission calculations are complete for this period with retirements completing in 1Q 2024, prior to external assurance for this application period.

Project Name	Account Name	Standard and Registry Type	Date of Retirement	Actual Carbon Offset (credits/tCO2e)	Hyperlinks	Vintage
ONIL Stove - Guatemala	BP Gas Marketing Limited	UN registry for CDM projects	3/9/2022	30,000	ONIL Stove - Guatemala	2017
CTL Landfill Gas Project - Brazil	BP Gas Marketing Limited	UN registry for CDM projects	3/9/2022	65,007	<u>CTL Landfill Gas - Brazil</u>	2014
El Arrayan Wind Farm Project - Chile	BP Gas Marketing Limited	UN registry for CDM projects	3/9/2022	304,911	<u>El Arrayan Wind Farm</u>	2020
Brazil NovaGerar Landfill Gas to Energy Project	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	28,953	<u>Landfill Gas to Energy - Brazil</u>	2016
Reducing Gas Leakages within the Titas Gas Distribution Network in Bangladesh	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	321,841	<u>Titas Gas - Bangladesh</u>	2017
Bundled Solar Photovoltaic Project By ACME	BP International Limited	VCS / Markit Env Registry	2/28/2023	55,000	India Bundled Solar	2015
Oaxaca III Wind Energy Project - Mexico	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	5,592	Oaxaca III Wind Energy	2014
Oaxaca II Wind Energy Project - Mexico	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	25,141	Oaxaca II Wind Energy	2014
Oaxaca IV Wind Energy Project - Mexico	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	76,131	Oaxaca IV Wind Energy	2017
Landfill gas recovery, energy generation and biogas distribution from CTR Santa Rosa, Brazil	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	64,451	<u>Landfill Gas / Biogas - Brazil</u>	2017
Clean Cookstoves - Guatemala	BP International Limited	VCS / Markit Env Registry	2/28/2023	11,883	<u>Clean Cookstoves - Guatemala</u>	2011
Clean Cookstoves - Guatemala	BP International Limited	VCS / Markit Env Registry	2/28/2023	9,000	<u>Clean Cookstoves - Guatemala</u>	2012

Table 6.1 Carbon	Offsets f	for the	2022	<b>Achievement Period</b>
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<sup>&</sup>lt;sup>11</sup> From 2023 forward, Castrol will be purchasing and retiring credits directly through bp's Low Carbon Trading team rather than working indirectly through bp Target Neutral who managed this process on Castrol's behalf prior to 2023.

Clean Cookstoves - Guatemala	BP International Limited	VCS / Markit Env Registry	2/28/2023	10,630	<u>Clean Cookstoves - Guatemala</u>	2013
Clean Cookstoves - Guatemala	BP International Limited	VCS / Markit Env Registry	2/28/2023	9,413	<u>Clean Cookstoves - Guatemala</u>	2014
Green power for South Africa	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	314,567	Green Power - South Africa	2013
Jilin Taonan Xinli 49.5MW Wind Power Project - China	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	78,834	Jilin Wind Power	2019
Jilin Taonan Xinli 49.5MW Wind Power Project – China	BP Gas Marketing Limited	UN registry for CDM projects	2/28/2023	144,152	Jilin Wind Power	2019
TOTAL				1,555,506		

The offsets highlighted in the first three rows of Table 6.1 represent a carryover of 399,918 tonnes from the 2021 Achievement Period. They were purchased and retired in 1Q 2022, but not used due to the difference between forecasted and actual GHG emissions for 2021. Scope 1 & 2 offsets have been removed from this table as they are included in a separate Castrol QES / application for Scope 1 & 2 carbon neutrality.

## Annex A: Qualifying Explanatory Statement (QES) Checklist

#### Table A.1 Checklist for QES supporting declaration of commitment to carbon neutrality

The following table has been extracted from PAS 2060:2014. It provides a checklist of information that should be included in the commitment to carbon neutrality, as well as identification of where this information is located.

#	Item Description	Status	Section in this QES
1	Identify the individual responsible for the evaluation and provision of data necessary for the substantiation of the declaration including that of preparing, substantiating, communicating, and maintaining the declaration.	✓	Section 2.1, Table 2.1
2	Identify the entity responsible for making the declaration.	$\checkmark$	Section 2.1, Table 2.1
3	Identify the subject of the declaration.	✓	Section 2.1, Table 2.1, Annex D, Table D.1, Table D.2, Table D.3
4	Explain the rationale for the selection of the subject. (The selection of the subject should ideally be based on a broader understanding of the entire carbon footprint of the entity so that the carbon footprint of the selected subject can be seen in context; entities need to be able to demonstrate that they are not intentionally excluding their most significant GHG emissions (or alternatively can explain why they have done so).)	✓	Page 2, Section 2.1, Table 2.1, Section 2.3, Section 5.2, Figure 5.1, Annex D, Table D.1, Table D.2
5	Define the boundaries of the subject.	$\checkmark$	Section 2.3, Table 2.1, Figure 2.2
6	Identify all characteristics ( <i>purposes, objectives, or functionality</i> ) inherent to that subject.	$\checkmark$	Section 2.3, Table 2.1, Figure 2.2, Section 3.2, Section 6.1, Table D.2
7	Identify and take into consideration all activities material to the fulfilment, achievement or delivery of the purposes, objectives, or functionality of the subject.	$\checkmark$	Section 2.3, Table D.2
8	Select which of the 3 options within PAS 2060 you intend to follow.	√	Section 2.2, Table 2.1, Figure 2.1
9	Identify the date by which the entity plans to achieve the status of 'carbon neutrality' of the subject and specify the period for which the entity intends to maintain that status.	$\checkmark$	Section 2.2, Figure 2.1, Section 5.1
10	Select an appropriate standard and methodology for defining the subject, the GHG emissions associated with that subject and the calculation of the carbon footprint for the defined subject.	~	Section 2.3, Section 3.1
11	Provide justification for the selection of the methodology chosen. (The methodology employed shall minimize	1	Section 3.1

	uncertainty and yield accurate, consistent, and reproducible results.)		
12	Confirm that the selected methodology was applied in accordance with its provisions and the principles set out in PAS 2060.	✓	Section 3.1
13	Describe the actual types of GHG emissions, classification of emissions ( <i>Scope 1, 2 or 3</i> ) and size of carbon footprint of the subject exclusive of any purchases of carbon offsets:	✓	Section 3.1, Section 3.2, Table 3.1, Annex C
	<ul> <li>a) All greenhouse gases shall be included and converted to tCO<sub>2</sub>e.</li> </ul>	✓	Section 3.1, Section 3.2
	b) 100% Scope 1 (direct) emissions relevant to the subject shall be included when determining the carbon footprint.	✓	Section 3.1, Table 3.1, Figure 3.1
	c) 100% Scope 2 (indirect) emissions relevant to the subject shall be included with determining the carbon footprint.	✓	Section 3.1, Table 3.1, Figure 3.1
	d) Where estimates of GHG emissions are used in the quantification of the subject carbon footprint (particularly when associated with Scope 3 emissions) these shall be determined in a manner that precludes underestimation.	✓	Section 3.1, Table 3.2
	e) Scope 1, 2 or 3 emission sources estimated to be more than 1% of the total carbon footprint shall be taken into consideration unless evidence can be provided to demonstrate that such quantification would not be technically feasible or cost effective. (Emissions sources estimated to constitute less than 1% may be excluded on that basis alone.)	✓	Table 3.1, Table 3.2
	f) The quantified carbon footprint shall cover at least 95% of the emissions from the subject.	✓	Figure 3.1, Table 3.2
	g) Where a single source contributes more than 50% of the total emissions, the 95% threshold applies to the remaining sources of emissions.	✓	Figure 3.1, Table 3.2
	<ul> <li>h) Any exclusion and the reason for that exclusion shall be documented.</li> </ul>	✓	Section 3.1, Table 3.2
14	Where the subject is an organization/ company or part thereof, ensure that:		
	a) Boundaries are a true and fair representation of the organization's GHG emissions (i.e., shall include GHG emissions relating to core operations including subsidiaries owned and operated by the organization). It will be important to ensure claims are credible – so if an entity chooses a very narrow subject and excludes its carbon intensive activities or it if outsources its carbon intensive activities, then this needs to be documented.	✓	Section 3.1, Table 3.2
	b) Either the equity shares or control approach has been used to define which GHG emissions are included. Under the equity share approach, the entity accounts for GHG emissions from the subject according to its share of equity in the subject. Under the control approach, the entity shall account for 100% of the GHG emissions over which it has financial and/or operational control.	✓	Table 2.1, Section 4.3.5

15	Identify if the subject is part of an organization or a specific site or location and treat as a discrete operation with its own purpose, objectives, and functionality.	N/A	
16	Where the subject is a product of service, include all Scope 3 emissions (as the life cycle of the product/ service needs to be taken into consideration).	√	Section 3.2
17	Describe the actual methods used to quantify GHG emissions (e.g., use of primary or secondary data), the measurement unit(s) applied, the period of application and the size of the resulting carbon footprint. (The carbon footprint shall be based as far as possible on primary activity data.) Where quantification is based on calculations (e.g., GHG activity data multiplied by greenhouse gas emission factors or the use of mass balance/ life cycle models) then GHG emissions shall be calculated using emissions factors from national (Government) publications. Where such factors are not available, international or industry guidelines shall be used. In all cases the sources of such data shall be identified.	✓	Page 1, Page 2, Section 2.1, Table 2.1, Figure 2.1, Section 3.1, Section 3.2, Table 3.1, Figure 3.1, Section 4.1, Section 4.3.2, Section 6.1
18	Provide details of, and explanation for, the exclusion of any Scope 3 emissions.	$\checkmark$	Section 3.1, Table 3.2
19	Document all assumptions and calculations made in quantifying GHG emissions and in the selection or development of greenhouse gas emissions factors. (Emission factors used shall be appropriate to the activity concerned and current at the time of quantification.)	✓	Section 3.1, Section 3.2, Section 4.1, Section 4.2, Section 4.3
20	Document your assessments of uncertainty and variability associated with defining boundaries and quantifying GHG emissions including the positive tolerances adopted in association with emissions estimates. (The statement could take the form of a qualitative description regarding the uncertainty of the results, or a quantitative assessment of uncertainty if available (e.g., carbon footprint based on 95% of likely greenhouse gas emissions; primary sources are subject to variation over time; footprint is best estimate based on reasonable costs of evaluation)).	~	Section 4.2, Section 4.3
21	Document Carbon Footprint Management Plan:		
	for the defined subject.	·	Section 5.1
	defined subject.	•	Section 5.1
	c) Specify targets for GHG reduction for the defined subject appropriate to the timescale for achieving carbon neutrality including the baseline date, the first qualification date and the first application period.	✓	Section 5.2
	d) Document the planned means of achieving and maintaining GHG emissions reductions including assumptions made and any justification of the techniques and measures to be employed to reduce GHG emissions.	✓	Section 5.2
	e) Specify the offset strategy including an estimate of the quantity of GHG emissions to be offset, the nature of the offsets and the likely number and type of credits.	✓	Section 6.1, Table 6.1
22	Implement a process for undertaking periodic assessments of performance against the Plan and for implementing	√	Section 5.2

	corrective action to ensure targets are achieved. The frequency of assessing performance against the Plan should be commensurate with the timescale for achieving carbon neutrality.		
23	Where the subject is a non-recurring event, such as weddings or a concert, identify ways of reducing GHG emissions to the maximum extent commensurate with enabling the event to meet its intended objectives before the event takes place and include 'post event review' to determine whether the expected minimization in emissions has been achieved.	N/A	
24	Any reductions in the GHG emissions from the defined subject delivered in the three years prior to the baseline date and not otherwise considered in any GHG emissions quantification have been made in accordance with this PAS.	N/A	
25	Record the number of times that the declaration of commitment has been renewed without declaration of achievement.	N/A	
26	Specify the type of conformity assessment:		
	a)independent third-party certification	$\checkmark$	Section 2.1, Table 2.1
	b)other party validation	N/A	
	c) self-validation	N/A	
27	Include statements of validation where declarations of commitment to carbon neutrality are validated by a third- party certifier or second party organizations.	✓	Annex B
28	Date the QES and have signed by the senior representative of the entity concerned (e.g., CEO of a corporation; Divisional Director, where the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group).	~	Page 2
29	Make the QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g., via websites).	√	A redacted version of the QES will be made publicly available.
30	Update the QES to reflect changes and actions that could affect the validity of the declaration of commitment to carbon neutrality.	✓	A commitment has been made by the business to do this; reflected on Page 2

#### Table A.2 Checklist for QES supporting declaration of achievement of carbon neutrality

The following table has been extracted from PAS 2060:2014. It provides a checklist of information that should be included in the achievement of carbon neutrality, as well as identification of where this information is located.

#	Item Description	Status	Section in this QES
1	Define standard and methodology to use to determine its GHG emissions	✓	Section 2.3,
	reduction.		Section 3.1
2	Confirm that the methodology used was applied in accordance with its provisions and the principles set out in PAS 2060 were met.	V	Section 3.1
3	Provide justification for the selection of the methodologies chosen to quantify reductions in the carbon footprint, including all assumptions and calculations made and any assessments of uncertainty. ( <i>The methodology employed to</i> <i>quantify reductions shall be the same as that used to quantify the original carbon</i> <i>footprint. Should an alternative methodology be available that would reduce</i> <i>uncertainty and yield more accurate, consistent, and reproducible results, then</i> <i>this may be used provided the original carbon footprint is re-qualified to the same</i> <i>methodology, for comparison purposes. Recalculated carbon footprints shall use</i> <i>the most recently available emission factors, ensuring that for purposes of</i> <i>comparison with the original calculation, any change in the factors used is</i> <i>considered.</i> )	✓	Section 3.1
4	Describe how reductions have been achieved and any applicable assumptions or justifications.	√	Section 5.2, Section 5.3
5	Ensure that there has been no change to the definition of the subject. (The entity shall ensure that the definition of the subject remains unchanged through each stage of the methodology. If material change to the subject occurs, the sequence shall be re-started based on a newly defined subject.)	✓	Section 2.3
6	Describe the actual reductions achieved in absolute and intensity terms and as a percentage of the original carbon footprint. (Quantified GHG emissions reductions shall be expressed in absolute terms and shall relate to the application period selected and/or shall be expressed in emission intensity terms (e.g., per specified unit of product or instance of service).)	✓	Section 5.3
7	State the baseline/ qualification date.	√	Section 2.2, Section 4.4
8	Record the percentage economic growth rate for the given application period used as a threshold for recognising reductions in intensity terms.	N/A	
9	Provide an explanation for circumstances where a GHG reduction in intensity terms is accompanied by an increase in absolute terms for the determined subject.	✓	Section 5.3
10	Select and document the standard and methodology used to achieve carbon offset.	~	Section 6.1
11	Confirm that:		
	<ul> <li>a) Offsets purchased or allowance credits surrendered represent genuine, additional GHG emission reductions elsewhere</li> </ul>	~	Section 6.1

	<ul> <li>b) Projects involved in delivering offsets meet the criteria of additionality, permanence, leakage, and double counting. (See WRI Greenhouse Gas Protocol for definitions of additionality, permanence, leakage, and double counting.)</li> </ul>	✓	Section 6.1
	c) Carbon offsets are verified by an independent third-party verifier	$\checkmark$	Section 6.1
	d) Credits from carbon offset projects are only issued after the emission reduction has taken place	√	Section 6.1, Section 6.3
	e) Credits from carbon offset projects are retired within 12 months from the date of the declaration of achievement	~	Section 6.1
	<ul> <li>f) Credits from carbon offset projects are supported by publicly available project documentation on a registry which shall provide information about the offset project, quantification methodology and validation and verification procedures</li> </ul>	~	Section 6.; Table 6.1
	g) Credits from carbon offset projects are stored and retired in an independent and credible registry	√	Section 6; Table 6.1
12	Document the quantity of GHG emissions offset and the type and nature of offsets purchased including the number and type of credits used and the time over which credits were generated including:	~	Section 6; Table 6.1
	a) Which GHG emissions have been offset	✓	Section 6; Table 6.1
	b) The actual amount of carbon offset	√	Section 6; Table 6.1
	c) The type of offset and projects involved	✓	Section 6; Table 6.1
	<ul> <li>The number and type of carbon offset credits used and the time over which the credits have been generated</li> </ul>	√	Section 6; Table 6.1
	e) Information regarding the retirement/ cancellation of carbon offset credits to prevent their use by others including a link to the registry where the offset has been retired.	✓	Section 6.1
13	Specify the type of conformity assessment:		
	a) independent third-party certification	√	Section 2, Table 2.1
	b) other party validation	N/A	
	c) self-validation	N/A	
14	Include statements of validation where declarations of achievement of carbon neutrality are validated by a third-party certifier or second party organisations.	✓	Annex B
15	Date the QES and have it signed by the senior representative of the entity concerned (e.g., CEO of a corporation; Divisional Director, where the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group).	~	Section 1
16	Make the QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g., via websites).	<b>v</b>	Carbon Neutrality Declaration, page 2

## Annex B: Carbon Neutrality Assurance Statement



WHEN TRUST MATTERS

## Independent Limited Assurance Report

#### to the Management of Lubricants UK Ltd

Lubricants UK Ltd ("Castrol") commissioned DNV Business Assurance Services UK Limited ("DNV", "us" or "we") to conduct a limited assurance engagement over the declaration of carbon neutrality in the Qualifying Explanatory Statement (the "Report") for the PATH360 Carbon Neutral Product portfolio made by Castrol for the achievement period 01 January 2022 to 31 December 2022 and the commitment period 01 January 2023 to 31 December 2023.



**Our Conclusion:** Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Report is not fairly stated and has not been prepared, in all material respects, in accordance with the Criteria.

This conclusion relates only to the Report, and is to be read in the context of this Independent Limited Assurance Report, in particular the inherent limitations explained below.

#### Scope of work

The scope and boundary of our work is restricted to assessing that Castrol's preparation of the declaration of carbon neutrality presented in the Report, is in accordance with the Publicly Available Specification (PAS) 2060:2014 Demonstration of Carbon Neutrality (the "Criteria").

The products included within the PATH360 Carbon Neutral Products are included in Annex D of the Report.

We have not performed any work, and do not express any conclusion, on any other information that may be published outside of the Report and/or on Castrol's websites for the current reporting period or for previous periods. Our work also excluded assessing the reliability of the inputs of the carbon footprint model.

#### Basis of our conclusion

We are required to plan and perform our work in order to consider the risk of material misstatement of the Report; our work included, but was not restricted to:

- Conducting interviews with Castrol's management to obtain an understanding of the key processes, systems and controls in place to generate and produce the content of the Report;
- Conducting interviews with the third party in charge of maintaining and updating the carbon footprint model, used in the
  production of the Report;
- Assessing whether the standards and methodologies used in the carbon footprint model met the Criteria;
- Performing limited substantive testing of the carbon footprint model to check that its data and underlying assumptions
  had been appropriately measured, recorded and reported; and
- Reviewing that the evidence, calculations and the context provided in the Report is prepared in line with the Criteria.

#### Our competence, independence and quality control

Inherent limitations

DNV's policies and procedures are designed to ensure that DNV, its personnel and others where applicable, are subject to independence requirements (including personnel of other entities of DNV) and maintain independence where necessary by relevant ethical requirements. This engagement was carried out by an independent team of sustainability assurance professionals. DNV holds other contracts with Castrol, none of which conflict with the scope of this work. Our multi-disciplinary team consisted of professionals with a combination of environmental and sustainability assurance experience. All assurance engagements are subject to inherent limitations as selective testing (sampling) may not detect errors, fraud or other irregularities. Non-financial data may be subject to greater inherent uncertainty than financial data, given the nature and methods used for calculating, estimating and determining such data. The selection of different, but acceptable, measurement techniques may result in different quantifications between different entities.

Our assurance relies on the premise that the data and information provided to us by Castrol have been provided in good faith. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Independent Limited Assurance Report.



#### Standard and level of assurance

We performed a **limited** data only assurance engagement using DNV's assurance methodology VeriSustain<sup>™</sup>, which is based on our professional experience, the 'Greenhouse Protocol – Product Lifecycle Accounting and Reporting Standard' (2011) and international assurance best practice including the International Standard on Assurance Engagements (ISAE) 3000 – 'Assurance Engagements other than Audits and Reviews of Historical Financial Information' (revised) issued by the International Auditing and Assurance Standards Board. This standard requires that we comply with ethical requirements and plan and perform the assurance engagement to obtain limited assurance.

DNV applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2015 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement; and the level of assurance obtained is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. We planned and performed our work to obtain the evidence we considered sufficient to provide a basis for our opinion, so that the risk of this conclusion being in error is reduced but not reduced to very low.

#### WHEN TRUST MATTERS

#### Responsibilities of Castrol's Management and DNV

The Management of Castrol have sole responsibility for:

- Preparing and presenting the Report in accordance with the Criteria;
- Designing, implementing and maintaining effective internal controls over the information and data, resulting in the preparation of the Report that is free from material misstatements;
- Measuring and reporting the Report's data based on the established Criteria; and
- Contents and statements contained within the Report.

Our responsibility is to plan and perform our work to obtain limited assurance about whether the Report has been prepared in accordance with the Criteria and to report to Castrol in the form of an Independent Limited Assurance Report, based on the work performed and the evidence obtained. We have not been responsible for the preparation of the Report.

For and on behalf of DNV Business Assurance Services UK Limited, London, UK 11 September 2023

Theun Walden

Shaun Walden Principal Consultant and Lead Assuror UK Sustainability and ESG Services, Supply Chain and Product Assurance

Nouvil Juman Glisch

Souvik Ghosh Principal Consultant and Reviewer UK Sustainability and ESG Services, Supply Chain and Product Assurance

## DNV Supply Chain and Product Assurance

DNV Business Assurance Services UK Limited is part of DNV – Supply Chain and Product Assurance, a global provider of certification, verification, assessment and training services, enabling customers and stakeholders to make critical decisions with confidence.

www.dnv.co.uk/BetterAssurance

## Annex C: Included GHG Emissions

#### Table C.1 Global warming potential (GWP) values relative to CO<sub>2</sub>

The following table includes the 100-year time horizon global warming potentials (GWP) relative to CO<sub>2</sub>, which have been used for the carbon footprint assessment of the subject. This table is adapted from the IPCC Fifth Assessment Report, 2014 (AR5)<sup>12</sup> For more information, please see the IPCC website <u>http://www.ipcc.ch/</u>

	Chemical formula	GWP values for 100-year time	
		horizon from IPCC	
common name		Fifth Assessr	nent Report (AR5)
Carbon dioxide	CO <sub>2</sub>	1	kg CO <sub>2</sub> -eq per kg
Methane	CH <sub>4</sub>	28	kg CO <sub>2</sub> -eq per kg
Nitrous oxide	N <sub>2</sub> O	265	kg CO <sub>2</sub> -eq per kg
Substances controlled by the Mor	treal Protocol		
CFC-11	CCI <sub>3F</sub>	4,660	kg CO <sub>2</sub> -eq per kg
CFC-12	CCl <sub>2</sub> F <sub>2</sub>	10,200	kg CO <sub>2</sub> -eq per kg
CFC-13	CCIF <sub>3</sub>	13,900	kg CO <sub>2</sub> -eq per kg
CFC-113	CCI <sub>2</sub> FCCIF <sub>2</sub>	5,820	kg CO <sub>2</sub> -eq per kg
CFC-114	CCIF <sub>2</sub> CCIF <sub>2</sub>	8,590	kg CO <sub>2</sub> -eq per kg
CFC-115	CCIF <sub>2</sub> CF <sub>3</sub>	7,670	kg CO <sub>2</sub> -eq per kg
Halon-1301	CBrF <sub>3</sub>	6,290	kg CO <sub>2</sub> -eq per kg
Halon-1211	CBrClF <sub>2</sub>	1,750	kg CO <sub>2</sub> -eq per kg
Halon-2402	CBrF <sub>2</sub> CBrF <sub>2</sub>	1,470	kg CO <sub>2</sub> -eq per kg
Carbon tetrachloride	CCl <sub>4</sub>	1,730	kg CO <sub>2</sub> -eq per kg
Methyl bromide	CH₃Br	2	kg CO <sub>2</sub> -eq per kg
Methyl chloroform	CH <sub>3</sub> CCl <sub>3</sub>	160	kg CO <sub>2</sub> -eq per kg
HCFC-21	CHCl <sub>2</sub> F	148	kg CO <sub>2</sub> -eq per kg
HCFC-22	CHCIF <sub>2</sub>	1,760	kg CO <sub>2</sub> -eq per kg
HCFC-123	CHCl <sub>2</sub> CF <sub>3</sub>	79	kg CO <sub>2</sub> -eq per kg
HCFC-124	CHCIFCF <sub>3</sub>	527	kg CO <sub>2</sub> -eq per kg
HCFC-141b	CH <sub>3</sub> CCl <sub>2</sub> F	782	kg CO <sub>2</sub> -eq per kg
HCFC-142b	CH <sub>3</sub> CCIF <sub>2</sub>	1,980	kg CO <sub>2</sub> -eq per kg
HCFC-225ca	CHCl <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	127	kg CO <sub>2</sub> -eq per kg
HCFC-225cb	CHCIFCF <sub>2</sub> CCIF <sub>2</sub>	525	kg CO <sub>2</sub> -eq per kg
Hydrofluorocarbons (HFCs)			
HFC-23	CHF <sub>3</sub>	12,400	kg CO <sub>2</sub> -eq per kg
HFC-32	CH <sub>2</sub> F <sub>2</sub>	677	kg CO <sub>2</sub> -eq per kg
HFC-41	CH <sub>3</sub> F <sub>2</sub>	116	kg CO <sub>2</sub> -eq per kg
HFC-125	CHF <sub>2</sub> CF <sub>3</sub>	3,170	kg CO <sub>2</sub> -eq per kg
HFC-134	CHF <sub>2</sub> CHF <sub>2</sub>	1,120	kg CO <sub>2</sub> -eq per kg
HFC-134a	CH <sub>2</sub> FCF <sub>3</sub>	1,300	kg CO <sub>2</sub> -eq per kg
HFC-143	CH <sub>2</sub> FCHF <sub>2</sub>	328	kg CO <sub>2</sub> -eq per kg
HFC-143a	CH <sub>3</sub> CF <sub>3</sub>	4,800	kg CO <sub>2</sub> -eq per kg
HFC-152	CH <sub>2</sub> FCH <sub>2</sub> F	16	kg CO <sub>2</sub> -eq per kg
HFC-152a	CH <sub>3</sub> CHF <sub>2</sub>	138	kg CO <sub>2</sub> -eq per kg
HFC-161	CH <sub>3</sub> CH <sub>2</sub> F	4	kg CO <sub>2</sub> -eq per kg
HFC-227ea	CF <sub>3</sub> CHFCF <sub>3</sub>	3,350	kg CO <sub>2</sub> -eq per kg

<sup>&</sup>lt;sup>12</sup>Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestvedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

HFC-236cb	CH <sub>2</sub> FCF <sub>2</sub> CF <sub>3</sub>	1,210	kg CO <sub>2</sub> -eq per kg
HFC-236ea	CHF <sub>2</sub> CHFCF <sub>3</sub>	1,330	kg CO <sub>2</sub> -eq per kg
HFC-236fa	CF <sub>3</sub> CH <sub>2</sub> CF <sub>3</sub>	8,060	kg CO <sub>2</sub> -eg per kg
HFC-245ca	CH <sub>2</sub> FCF <sub>2</sub> CHF <sub>2</sub>	716	ka CO <sub>2</sub> -ea per ka
HFC-245fa	CHF2CH2CF3	858	ka CO <sub>2</sub> -ea per ka
HFC-365mfc	CH <sub>3</sub> CF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	804	ka CO <sub>2</sub> -ea per ka
HFC-43-10mee	CF <sub>3</sub> CHFCHFCF <sub>2</sub> CF <sub>3</sub>	1.650	ka CO <sub>2</sub> -ea per ka
Perfluorinated compounds		.,	1.19 0 02 0 1 1 1 1 1 1 1 1
Sulphur hexafluoride	SF6	23.500	ka CO2-ea per ka
Nitrogen trifluoride	NF3	16,100	ka CO <sub>2</sub> -ea per ka
PEC-14	CF4	6 630	ka CO2-ea per ka
PEC-116	C <sub>2</sub> F <sub>6</sub>	11 100	ka CO2-ea per ka
PEC-218	C <sub>3</sub> F <sub>8</sub>	8 900	ka CO2-ea per ka
PFC-318	c-C4F8	9.540	ka CO2-ea per ka
PFC-31-10	$C_4F_{10}$	9,200	ka CO2-ea per ka
PFC-41-12	C5F12	8,550	ka CO2-ea per ka
PEC-51-14	C6F14	7,910	ka CO2-ea per ka
PCF-91-18	C10F18	7 190	ka CO2-ea per ka
Trifluoromethyl sulphur		1,100	
pentafluoride	SF5CF3	17,400	kg CO <sub>2</sub> -eq per kg
Perfluorocyclopropane	c-C3E6	9 200	ka CO2-ea per ka
Fluorinated ethers		0,200	ng ooz oq por ng
HEE-125		12 400	ka CO2-ea per ka
HFE-134		5 560	ka CO2-ea per ka
HFE-143a		523	ka CO2-ea per ka
HCEE-235da2		491	ka CO2-eq per ka
HEE-245ch2		645	ka CO2-eq per ka
HFE_2/15fa2		812	kg CO <sub>2</sub> -eq per kg
HFE-347mcc3		530	kg CO <sub>2</sub> -eq per kg
HFE-347ncf2		889	ka CO2-eq per ka
HEE-356pcc3		413	ka CO2-ea per ka
HEE-449sl (HEE-7100)		421	ka CO2-ea per ka
HEE-569sf2 (HEE-7200)		57	ka CO2-ea per ka
HEE-43-10pccc124 (H-Galden			
1040x)	CHF2OCF2OC2F4OCHF2	2,820	kg CO <sub>2</sub> -eq per kg
HEE-234ca12 (HG-10)		5 350	ka CO2-ea per ka
HEE-338pcc13 (HG-01)	CHE20CE2CE2OCHE2	2,910	ka CO2-ea per ka
HFE-227ea	CE3CHEOCE3	6 4 5 0	ka CO2-ea per ka
HFE-236ea2		1 790	ka CO2-ea per ka
HEE-236fa	CE3CH2OCE3	979	ka CO2-ea per ka
HFE-245fa1	CHE <sub>2</sub> CH <sub>2</sub> OCE <sub>3</sub>	828	ka CO2-ea per ka
HFF-263fb2	CF <sub>3</sub> CH <sub>2</sub> OCH <sub>3</sub>	1	ka CO <sub>2</sub> -ea per ka
HFF-329mcc2	CHF <sub>2</sub> CF <sub>2</sub> OCF <sub>2</sub> CF <sub>3</sub>	3.070	ka CO <sub>2</sub> -ea per ka
HFF-338mcf2	CF <sub>3</sub> CH <sub>2</sub> OCF <sub>2</sub> CF <sub>3</sub>	929	ka CO <sub>2</sub> -ea per ka
HFE-347mcf2	CHE2CH2OCE2CE3	854	ka CO2-ea per ka
HEE-356mec3	CH <sub>3</sub> OCE <sub>2</sub> CHECE <sub>3</sub>	387	ka CO2-ea per ka
HEE-356pcf2	CHE <sub>2</sub> CH <sub>2</sub> OCE <sub>2</sub> CHE <sub>2</sub>	719	ka CO2-ea per ka
HEE-356pcf3	CHE20CH2CE2CHE2	446	ka CO2-ea per ka
HEE-365mcf3	CE3CE2CH2OCH3	<1	ka CO2-ea per ka
HFF-374pc2	CHE <sub>2</sub> CE <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub>	627	ka CO <sub>2</sub> -ea per ka
Perfluoropolyethers		_ ~	
PEPMIE		9 710	ka CO2-ea per ka
Hydrocarbons and other compound	nds – direct effects	0,110	
Chloroform	CHCl <sub>3</sub>	16	ka CO2-ea per ka
Methylene chloride		9	ka CO <sub>2</sub> -ea per ka
Methyl chloride	CH <sub>2</sub> Cl	12	ka CO <sub>2</sub> -ea per ka
Halon-1201	CHBrF <sub>2</sub>	376	ka CO2-ea per ka
	0112112	515	I ng ooz oq por ng

## Annex D: Products in Scope

Table D.1 List of Carbon Neutral Categories and Reason	n for Inclusion (Classification)
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CASTROL'S CARBON NEUTRAL PRODUCT PORTFOLIO			
	– IN ACCORDANCE WITH PAS 2060		
LEAD BRA	ANDS - CARBON NEUTRAL PRODUCTS FOR EACH SECTOR CASTRO	DL SELLS TO	
EDGE	Automotive Passenger Car Oils (PCO)	All Products Sold Globally	
POWER1	Automotive Motorcycle Oils (MCO)	All Products Sold Globally	
VECTON	Automotive Commercial Vehicle Oils (CVO)	All Products Sold Globally	
OPTIGEAR	Industrial Gear Oils	All Products Sold Globally	
EDGE PROFESSIONAL, MAGNATEC PROFESSIONAL & GTX PROFESSIONAL	Automotive Passenger Car Oils sold primarily to OEMs and Franchise Workshops	All Products Sold Globally	
BRAYCO & TRANSAQUA	Compressor Oils and Hydraulic Fluids sold to customers in the Energy sector	All Products Sold Globally	
BIOBAR, BIOSTAT & BIOTAC	Hydraulic Fluids and Greases sold to customers in the Marine sector	All Products Sold Globally	
ALUSOL XBB and HYSOL XBB; TECHNICLEAN XBC	Industrial Coolants and Cleaners	All Products Sold Globally	
Castrol ON	e-Mobility Fluids	All Products Sold Globally	
LEAD	COUNTRIES – ALL PRODUCTS SOLD IN COUNTRY ARE CARBON N	EUTRAL	
	Australia, New Zealand and Vietnam		
	MARKET-SPECIFIC CARBON NEUTRAL PRODUCTS		
Europe & Russia PCO	Europe & Russia PCO All EDGE, GTX, MAGNATEC & TRANSMAX branded passenger car oils sold in Europe & Russia		
Japan PCO	lapan PCO All EDGE, Engine Shampoo, GTX, MAGNATEC & TRANSMAX branded passenger car oils sold in Japan		
Europe CRB	All CRB branded commercial vehicle oils sold in Europe		
India MAGNATEC	All MAGNATEC branded passenger car oils sold in India		
US TRANSYND &	US TRANSYND & All TRANSYND, TRANSYND RD and AUTRAN SYN 295 Automatic Transmission Fluid (ATF)		
AUTRAN	AUTRAN   products sold in the US		

INDIA MAGNATEC: Added from 2022 and making up 0.9% of total carbon neutral volume and GHG emissions in 2022.

Product Category	Product Type	Product Category	Product Type
Cars	Additives	Industrial	Chain Lubricants
	Antifreeze/ Coolants (automotive)		Circulating Oils
	Automatic Transmission Fluid		Compressor oils
	Brake Fluid		Coolants (Industrial)
	Engine oils: Passenger Car (and car derived van)		Corrosion preventives
	Gear oils		Food grades
	Greases		Forming oils
	Hydraulic fluids		Gear oils
	Industrial Cleaners		Greases
	Manual Transmission Fluids		Heat transfer oils
	Other		Hydraulic fluids
	Specialties		Industrial Cleaners
<b>Commercial Vehicles</b>	Antifreeze/ Coolants (automotive)		Other
	Automatic Transmission Fluid		Process Oils
	Chain Lubricants		Refrigerator Compressor Oil
	Coolants (Industrial)		Slide Way Oils
	Engine oils: Commercial Vehicle		Specialties
	Engine oils: Marine		Specification grades
	Engine oils: Off Highway		Steam Reciprocating Engine Oils
	Gear oils		Wire Rope Protectives
	Greases	Marine	Engine oils: Marine
	Hydraulic fluids		Gear oils
	Industrial Cleaners		Greases
	Manual Transmission Fluids		Hydraulic fluids
	Multifunctional fluids		Other
	Other		Refrigerator Compressor Oil
	Specialties		Turbine oils
Motorcycles	Engine oils: Motorcycle	Energy	Compressor oils
	Motorcycle Ancillaries		Engine oils: Gas-Industrial
	Small Engine Oil		Heat transfer oils
			Hydraulic fluids
			Specification grades
			Transformer Oils
			Turbine oils

## Table D.2 List of Product Types by Category Sold

## Table D.3 Complete List of Product Variants by Carbon Neutral Category

Australia & New Zealand			
AC Spider Bearing Grease	Anvol SWX 68	Hair & Body Wash	llocut 482
Activ 2T	Anvol WG 46	High Temperature Grease	llocut 534
Activ 4T 15W-50	ATF Dex III	Hino Diesel X Plus 15W-40	lloform PN 135
Adblue	ATF Heavy Duty	Hino Driveline X 90	Iloform PN 223
Aero J5	Autran FD 60	Hino Shift X 80W-90	Iloform PN 224
Agri AS Trans Plus 20W-30	Axle AP 85W-140	HLX 40	KIA Brake Fluid DOT 4
Agri Grease Ultra	Axle EPX 80W-90	HSA 460	Komatsu Axle Oil AXO80
Agri MP Plus 20W-40	Axle EPX 85W-140	Hydraulic Oil 46	Komatsu EO15W40 CK-4 KES
Agri Trans Plus 80W	Axle GO-J 90	Hydraulic Oil 68	Komatsu Gear Oil 85W-140
Aircol 2294	Axle Limited Slip 85W-140	Hypogear 80W-90	Komatsu Hydraulic Oil 46
Aircol AMS 68	Axle Limited Slip 90	Hypogear 85W-140	Komatsu Hyper Grease G2-TE
Aircol CM 100	Axle Long Drain 80W-90	Hysol MB 50	Komatsu Lithium EP Grease G2-LI
Aircol CM 32	Bio RDC	Hysol X	Komatsu Powertrain Oil TO-10
Aircol CM 46	Biotrans QB	Hyspin AWH 100	Komatsu Powertrain Oil TO-30
Aircol CM 68	Brake Fluid DOT 3	Hyspin AWH 15	Komatsu Supercoolant AF-NAC Premix
Aircol LPT 68	Brake Fluid DOT 4	Hyspin AWH 32	Magna CL 1000
Aircol SN 100	Brayco Micronic 756	Hyspin AWH 46	Magna CL 460
Aircol SR 46	Braycote Inertox 2	Hyspin AWH 46 Superclean	Magna CS-ML 370
Aircol SR 68	Bulldog Premium Coolant	Hyspin AWH 68	Magna CT 220
Almaredge Bl	Calibration Oil 4113	Hyspin AWH 68 Superclean	Magna CT 320
Alpha SP 100	CareClean Lime	Hyspin AWH-M 100	Magna CT 370
Alpha SP 150	Chain Spray O-R	Hyspin AWH-M 15	Magna CT 680
Alpha SP 220	Chainsaw Oil	Hyspin AWH-M 32	Magna CTX 100 WT
Alpha SP 320	CRB Mining 15W-40 CK-4	Hyspin AWH-M 46	Magna CTX 220 WT
Alpha SP 460	CRB Rail 20W-40	Hyspin AWH-M 68	Magna CTX 320 WT
Alpha SP 68	CRB Rail 20W-40 LS	Hyspin AWS 10	Magna CTX 460 WT
Alpha SP 680	Cutter Bar and Chain Lubricant	Hyspin AWS 100	Magna RD 100
Alpha TT 1200	Cyltech 40SX	Hyspin AWS 150	Magna RD 150
Alpha VT 32	Duratec L	Hyspin AWS 22 Superclean	Magna RD 320
Alpha WT 220	Duratec M	Hyspin AWS 220	Magna SW 32
Alpha WT 320	Duratec MX	Hyspin AWS 32	Magna SW D 220
Alpha WT 460	Dynadrive 80W-90	Hyspin AWS 46	Magna SW D 68
Alphasyn EP 150	Energear Axle LS 90	Hyspin AWS 68	Magna ZN 100
Alphasyn EP 1500	Engine Shampoo	Hyspin AWS 68 Superclean	Magnatec 10W-40
Alphasyn EP 220	Foam Air Filter Oil (Aerosol)	Hyspin Glow 68	Magnatec 15W-40
Alphasyn EP 320	Ford Brake Fluid R139	Hyspin HDH 7000	Magnatec 5W-20
Alphasyn EP 460	Fork Oil 15W	Hyspin HVI 100	Magnatec 5W-30
Alphasyn EP 680	Fork Oil 5W	Hyspin HVI 15	Magnatec 5W-30 A5
Alphasyn HG 220	Fuel Doctor	Hyspin HVI 32	Magnatec 5W-30 DX
Alphasyn HTX 1000	Garden 2T	Hyspin HVI 46	Magnatec 5W-40
Alphasyn HTX 320	Garden 4T 10W-30	Hyspin HVI 46 Superclean	Magnatec Diesel 15W-40
Alphasyn PG 220	Garden 4T 30	Hyspin HVI 68	Magnatec Diesel DX 5W-40
Alphasyn PG 460	GTX 15W-40 (AZ)	Hyspin HVI 68 Superclean	Magnatec Fuel Saver DX 5W-30
Alphasyn T 150	GTX 20W-50	Hyspin VSH 3000	Magnatec Hybrid 0W-16
Alphasyn T 220	GTX 5W-30 RN17	Hyspin ZZ 100	Magnatec Stop-Start 0W-20
Alphasyn T 320	GTX Diesel 15W-40	Hyspin ZZ 32 Superclean	Magnatec Stop-Start 0W-30 D
Alphasyn T 460	GTX Diesel 15W-40 (NZ)	Hyspin ZZ 46 Superclean	Magnatec Stop-Start 10W-30
Alphasyn T 68	GTX High Mileage 15W-50	Hyspin ZZ 68 Superclean	Magnatec Stop-Start 5W-20 E
Anvol AE 5/95	GTX ULTRACLEAN 10W-30	Hyspray E 2010	Magnatec Stop-Start 5W-30
Anvol PE 46 B	GTX ULTRACLEAN 15W-40	llocut 154	Magnatec Stop-Start 5W-30 A5

Australia & New Zealand (continued)			
Magnatec SUV 5W-30 C3	Motorcraft Dual Clutch Transmission Fluid 75W	Rustilo DWX 32	
Manual EP 80W	Motorcraft Manual Transmission Fluid FE 75W	RX Diesel 15W-40 CI-4 Plus/E7	
Manual VMX 80W	Motorcraft SAE 5W-30 Full Synthetic Engine Oil	RX Diesel 15W-40 CI-4/E7	
Manual VMX-M 75W-85	Multiclean	RX Mono 30 CF	
Mazda ATF FZ	Multipurpose Degreaser	RX Mono 40 CF	
Mazda Brake Fluid Super	Optileb WOM 14	RX Mono DD 40	
Mazda Coolant	Optileb WOM 65	RX Super 15W-40 CJ-4/E9	
Mazda Diesel Oil Extra DL-1 5W-30	Optitemp LG 2	SCI Grease 1	
Mazda FL 22 Coolant	Other Non-Oil Items	Second Tier	
Mazda Premium Engine Oil	Outboard 2T	Spheerol AP 3	
Mazda Rotary Oil 5W-30	Perfecto HT 12	Spheerol BTX 2	
MHP 153	Perfecto HT 5	Spheerol EPL 0	
MHP 154	Perfecto TR IN	Spheerol EPL 00	
Mine Grease	Perfecto X 100	Spheerol EPL 1	
Mineclean	Perfecto X 32	Spheerol EPL 2	
Minegrease LM EP 680	Perfecto X 32 Superclean	Spheerol EPLX 200-1	
Mitsubishi Coolant Premix	Perfecto X 46	Spheerol EPLX 200-2	
Mitsubishi Diamond Spectrum ATF SP III	Perfecto X 68	Spheerol EPLX-M 2	
Mitsubishi DPF Diesel Engine Oil 5W-30	Perfecto XEP 32 Superclean	Spheerol FPG	
Mitsubishi MSL 5W-30	Perfecto XEP 46 Superclean	Spheerol HTB	
Mitsubishi MSL-II 5W-30	Performance Bio CH 32	Spheerol JBG	
Mitsubishi Super Longlife Coolant Premix	Performance Bio HE 32 TG	Spheerol LC 2M	
Molub-Alloy 1000 HT	Power Steering Fluid	Spheerol LMM	
Molub-Alloy 6040/150	Premium Cool Plus	Spheerol LYT 1	
Molub-Alloy 6040/460-1 1/2	Premium Cool Plus 50	Spheerol SBX 1	
Molub-Alloy 777-1 ES	Premium Heavy Duty	Spheerol SBX 2	
Molub-Alloy 777-2 ES	QB100 Degreaser	Spheerol SX 2	
Molub-Alloy 860/220-2 ES	Radicool	Spheerol SY 1002	
Molub-Alloy 860/460-2 ES	Radicool NF	Spheerol SY 1501	
Molub-Alloy BH 47/1600-1.5	Radicool NF Premix	Spheerol SY 2202	
Molub-Alloy BRB 572	Radicool Non-Glycol Premix	Spheerol SY 4601	
Molub-Alloy CH 22	Radicool PG Premix	Spheerol Ultratak	
Molub-Alloy GM 1500	Radicool Premix	Subaru Brake Fluid	
Molub-Alloy OG 8031/2200-00	Radicool SF	Subaru Coolant	
Molub-Alloy OG 8031/3000-00	Radicool SF Premix	Subaru Long-Life coolant	
Molub-Alloy OG 8031/6000-00	Radicool Si-OAT	Super TOU 15W-40	
Molub-Alloy OG 9000	Radicool Si-OAT Premix	Syntilo 1023	
Molub-Alloy OG 9002 Heavy	React Performance DOT 4	Syntilo 24	
Molub-Alloy OG 936 SF Heavy A	React SRF Racing	Syntilo 9902	
Molub-Alloy OG 936 SF Super Heavy	Red Rubber Grease	Syntrans 75W-85	
Molub-Alloy WC 880 LF Heavy	Renault - Castrol GTX RN-SPEC 5W-30 RN 17	Syntrans AT 75W-90	
Molub-Alloy WC 880 SF Medium	Renault - Castrol GTX RN-SPEC 5W-30 RN 720	Syntrans FE 75W	
Molub-Alloy WR 1000	Rustilo 630	Syntrans Heavy Duty 75W-90	
Molub-Alloy WR 921	Rustilo DWX 21	Syntrans Z Long Life 75W-80	
Molub-Alloy WRL 119	Rustilo DWX 22	Syntrax 80W-140	
MOP S	Rustilo DWX 30	Syntrax E 80W-140	

Australia & New Zealand (continued)		
Syntrax Limited Slip 75W-140	Transmax Limited Slip LL 75W-140	Tribol GR 100-2 PD
Syntrax Long Life 75W-140	Transmax Manual AT 75W-90	Tribol GR 1350-2.5 PD
Syntrax Long Life 75W-90	Transmax Manual E Long Life 40	Tribol GR 3020/1000-0 PD
Syntrax Universal Plus 75W-90	Transmax Manual Heavy Duty 75W-90	Tribol GR 3020/1000-000 PD
Techniclean AS 62	Transmax Manual Z Long Life 75W-80	Tribol GR 3020/1000-1 PD
Techniclean Galvpack PB	Transmax Mercon V	Tribol GR 4020/220-1 PD
Techniclean SC 320	Transmax Multivehicle	Tribol GR 4020/220-2 PD
Techniclean SF	Transmax Offroad 10W	Tribol GR 4747/220-2 HT
TFC 450	Transmax Offroad 30	Tribol GR HT 2
TGMO 0W-30 C2	Transmax Offroad 50	Tribol GR XT 2 HT
TGMO 10W-30 SN/CF	Transmax Offroad 60	Tribol HM 943/68
Tractran TF-10	Transmax Offroad FD 60	Tribol WR 4600
Transmax Agri MP Plus 20W-40	Transmax TQ 95	Universal 80W-90
Transmax Agri Trans Plus 80W	Transmax Type F	Valvemaster
Transmax ATF Heavy Duty	Transmax Universal 85W-140	Vanellus Multi-Fleet ECO 15W-40
Transmax Axle AP 80W-90	Transmax Z	Vanellus Multi-Fleet Plus 15W-40
Transmax Axle AP 85W-140	TranSynd	Variocut G 600 HC
Transmax Axle Long Life 75W-140	TranSynd 668	Viscogen KL 23
Transmax CVT	TranSynd RD	Viscogen KL 23 Spray
Transmax DEXRON <sup>®</sup> -VI MERCON <sup>®</sup> LV	Tribol GR 100-00 PD	Viscogen KLK 28
Transmax DUAL	Tribol GR 100-1 PD	Wonderclean
Transmax Dynadrive Long Life 80W-90		

BIO RANGE	EDGE (continued)	Europe + Russia PCO
BioBar 22	EDGE 10W-60 SN	EDGE 0W-20 C5
BioBar 32	EDGE 25W-50	EDGE 0W-20 E
BioBar 46	EDGE 5W-20	EDGE 0W-20 LL IV
BioBar 68	EDGE 5W-20 U.S.	EDGE 0W-20 V
BioStat 100	EDGE 5W-30	EDGE 0W-30
BioStat 150	EDGE 5W-30 A3/B4	EDGE 0W-30 A3/B4
BioStat 220	EDGE 5W-30 A5/B5	EDGE 0W-30 A5/B5
BioStat 68	EDGE 5W-30 C1	EDGE 0W-40
ВіоТас МР	EDGE 5W-30 C3	EDGE 0W-40 A3/B4
BioTac MP2	EDGE 5W-30 DX	EDGE 0W-40 R
BioTac OG	EDGE 5W-30 FE	EDGE 0W-40 RN 17 RSA
BRAYCO	EDGE 5W-30 K	EDGE 10W-60
Brayco HV 10	EDGE 5W-30 LL	EDGE 5W-30 A5/B5
Brayco Micronic LV/3	EDGE 5W-30 M	EDGE 5W-30 C1
Brayco Micronic SBF E	EDGE 5W-30 S	EDGE 5W-30 C3
Brayco Micronic SV/3	EDGE 5W-30 U.S.	EDGE 5W-30 LL
Brayco Micronic SV/B	EDGE 5W-40	EDGE 5W-30 M
CASTROL ON	EDGE 5W-40 (EU)	EDGE 5W-40
ON EV Transmission Fluid D1	EDGE 5W-40 A3/B4	EDGE 5W-40 A3/B4
ON EV Transmission Fluid D2	EDGE 5W-40 C3	EDGE 5W-40 M
ON EV Transmission Fluid E1	EDGE 5W-40 M	EDGE Longlife II 0W-30
ON EV Transmission Fluid W1	EDGE 5W-40 SN	EDGE Supercar 5W-50
ON EV Transmission Fluid W2	EDGE 5W-40 U.S.	EDGE Turbo Diesel 0W-30
ON EV Transmission Fluid W3	EDGE 5W-50	EDGE Turbo Diesel 5W-40
EDGE	EDGE 5W-50 U.S.	Ford - Castrol Magnatec 0W-20 Diesel
EDGE 0W-16	EDGE Bio-Synthetic 0W-20	Ford - Castrol Magnatec 0W-30 D
EDGE 0W-20 C5	EDGE Bio-Synthetic 5W-30	Ford - Castrol Magnatec 5W-20 E
EDGE 0W-20 EC	EDGE Extended Performance 0W-20	Ford - Castrol Magnatec 5W-30 A5
EDGE 0W-20 FE	EDGE Extended Performance 5W-20	Ford - Castrol Magnatec 5W-40 OE
EDGE 0W-20 LL IV	EDGE Extended Performance 5W-30	GTX 15W-40 A3/B3
EDGE 0W-20 LL-17 FE+	EDGE High Mileage 0W-20	GTX 20W-50
EDGE 0W-20 S	EDGE High Mileage 10W-30	GTX 5W-30 A5/B5
EDGE 0W-20 U.S.	EDGE High Mileage 10W-40	GTX 5W-30 C2
EDGE 0W-20 V	EDGE High Mileage 5W-20	GTX 5W-30 C3
EDGE 0W-30	EDGE High Mileage 5W-30	GTX 5W-30 C4
EDGE 0W-30 A3/B4	EDGE Pick-Up 0W-20 U.S.	GTX 5W-30 MP
EDGE 0W-30 A5/B5	EDGE Pick-Up 5W-20 U.S.	GTX 5W-30 RN17
EDGE 0W-30 C2	EDGE Pick-Up 5W-30	GTX 5W-40 A3/B4
EDGE 0W-30 DX	EDGE Pick-Up 5W-30 U.S.	GTX 5W-40 MV
EDGE 0W-30 LL	EDGE Sport 10W-60	GTX Essential 5W-40
EDGE 0W-40	EDGE Supercar 0W-20	GTX ULTRACLEAN 10W-40 A/B
EDGE 0W-40 (EU)	EDGE Supercar 0W-30 A3/B4	GTX ULTRACLEAN 10W-40 A3/B4
EDGE 0W-40 A3/B4	EDGE Supercar 0W-40 A3/B4	Magnatec 10W-40 A/B
EDGE 0W-40 F	EDGE Supercar 5W-50	Magnatec 10W-40 A3/B4
EDGE 0W-40 RN 17 RSA	EDGE Supercar Race Oil 15W-40	Magnatec 15W-40 A3/B4
EDGE 0W-40 SP	EDGE Turbo Diesel 0W-30	Magnatec 5W-30 A3/B4
EDGE 10W-30	EDGE Turbo Diesel 5W-40	Magnatec 5W-30 A5
EDGE 10W-30 U.S.	Mixed Carton EDGE 5W-30 C3 and Engine Shampoo	Magnatec 5W-30 AP
EDGE 10W-40	Mixed Carton EDGE 5W-40 A3/B4 and Engine Shampoo	Magnatec 5W-30 DX
EDGE 10W-60	Mixed Carton EDGE Pick-Up 5W-30 and Engine Shampoo Diesel	Magnatec 5W-40 A3/B4

Europe + Russia PCO (continued)		Japan PCO (continued)
Magnatec 5W-40 C3	Transmax Universal 75W-90	Magnatec Hybrid 0W-16
Magnatec Diesel 0W-20	Transmax Universal LL 75W-90	Magnatec Hybrid 0W-20
Magnatec Diesel 10W-40 B4	Transmax Universal LL 80W-90	Magnatec Light 5W-40
Magnatec Diesel 5W-40 DPF	Europe CRB	Magnatec MZ 0W-20
Magnatec Hybrid 0W-20	CRB Monograde 10W CF	Magnatec SUV 0W-20
Magnatec Stop-Start 0W-20 GF	CRB Monograde 30 CF	Volkswagen Engine Shampoo
Magnatec Stop-Start 0W-30 C2	CRB Monograde 40 CF/CF-2	Japan TRANSMAX
Magnatec Stop-Start 0W-30 D	CRB Multi 15W-40 CI-4/E7	Transmax ATF Dex/Merc Multivehicle
Magnatec Stop-Start 5W-20 E	CRB Multi 20W-50 CH-4	Transmax ATF FE Multivehicle
Magnatec Stop-Start 5W-30 A3/B4	CRB Rivermax 15W-40 CI-4/E7	Transmax ATF Professional FE
Magnatec Stop-Start 5W-30 A5	CRB Turbomax 10W-40 E4/E7	Transmax ATF Type H
Magnatec Stop-Start 5W-30 C2	India MAGNATEC	Transmax ATF Z
Magnatec Stop-Start 5W-30 C3	Magnatec 10W-40	Transmax Axle 80W-90
Magnatec Stop-Start 5W-30 S1	Magnatec 5W-30 A5	Transmax CVT
Transmax Agri MP 15W-30	Magnatec 5W-30 T	Transmax CVT Professional
Transmax Agri MP 15W-40	Magnatec Diesel 15W-40	Transmax Hybrid Multivehicle
Transmax Agri MP Plus 10W-30	Magnatec STOP-START 0W-16 SP	Transmax Manual 75W-90
Transmax Agri MP Plus 10W-40	Magnatec Stop-Start 0W-20	Transmax Manual 80W-90
Transmax Agri Trans AS 80W	Magnatec STOP-START 0W-20 SN+/C2	Transmax Z
Transmax Agri Trans Plus 80W	Magnatec Stop-Start 5W-30	OPTIGEAR
Transmax ATF Dex/Merc	Magnatec STOP-START 5W-30 SN+/C2	Optigear 100
Transmax ATF Dex/Merc Multivehicle	Magnatec SUV 5W-40	Optigear 1100/100
Transmax ATF DEXRON®-VI MERCON® LV Multivehicle	Magnatec SUV 5W-40 A3/B4	Optigear 1100/1000
Transmax ATF DX III Multivehicle	Magnatec SUV 5W-40 SN+/C3	Optigear 1100/150
Transmax ATF Z	Japan PCO	Optigear 1100/1500
Transmax Axle EPX 80W-90	EDGE 0W-16	Optigear 1100/220
Transmax Axle EPX 85W-140	EDGE 0W-20 FE	Optigear 1100/320
Transmax Axle EPX 85W-90	EDGE 0W-40 A3/B4	Optigear 1100/460
Transmax Axle Long Drain 80W-90	EDGE 0W-40 RN 17 RSA	Optigear 1100/68
Transmax Axle Long Life 75W-140	EDGE 10W-30	Optigear 1100/680
Transmax Axle Long Life 75W-90	EDGE 10W-60	Optigear 150
Transmax CVT	EDGE 5W-30 FE	Optigear 220
Transmax Dex III Multivehicle	EDGE 5W-30 LL	Optigear 320
Transmax DEXRON®-VI MERCON® LV	EDGE 5W-40 A3/B4	Optigear ALR 320
Transmax DUAL	EDGE 5W-50	Optigear ALR X1
Transmax Limited Slip 75W-90	EDGE High Mileage 0W-20	Optigear BM 100
Transmax Limited Slip LL 75W-140	EDGE RS 10W-50	Optigear BM 1000
Transmax Limited Slip Z 85W-90	Engine Shampoo	Optigear BM 150
Transmax Manual AT 75W-90	Engine Shampoo Pro	Optigear BM 1500
Transmax Manual EP 80W	GTX 10W-30	Optigear BM 220
Transmax Manual EP 80W-90	GTX 5W-30	Optigear BM 3000
Transmax Manual FE 75W	GTX DC-Turbo 10W-30	Optigear BM 320
Transmax Manual Long Life 75W-85	GTX ULTRACLEAN 0W-20	Optigear BM 460
Transmax Manual Multivehicle 75W-90	GTX ULTRACLEAN 5W-30	Optigear BM 68
Transmax Manual Transaxle 75W-90	GTX ULTRACLEAN 5W-40	Optigear BM 680
Transmax Manual V 75W-80	Magnatec 0W-20	Optigear EP 100
Transmax Manual Z Long Life 75W-80	Magnatec 10W-40	Optigear EP 150
Transmax Offroad 10W	Magnatec 5W-20	Optigear EP 220
Transmax Offroad 30	Magnatec 5W-30	Optigear EP 32
Transmax Offroad 50	Magnatec Diesel 10W-40	Optigear EP 320

OPTIGEAR (continued)	POWER 1 (co	ntinued)
Optigear EP 46	Power 1 Racing 2T	POWER1 XR 77
Optigear EP 460	Power 1 Racing 4T 10W-40	PROFESSIONAL
Optigear EP 68	Power 1 Scooter 2T	EDGE Professional OW-20
Optigear MX 150	Power 1 Scooter 4T 10W-30	EDGE Professional 5W-20
Optigear MX 320	Power 1 Scooter 4T 10W-40	EDGE Professional 5W-30
Optigear OG 4 EP	Power 1 V-Twin 4T 20W-50	EDGE Professional 5W-40
Optigear RMO	Power RS 2T	EDGE Professional A1 5W-20
Optigear Synthetic 1300/220	POWER RS 4T 10W-30	EDGE Professional A3 0W-30
Optigear Synthetic 1300/460	POWER RS 4T 10W-40	EDGE Professional A3 0W-40
Optigear Synthetic 1390/220	POWER RS 4T 15W-50	EDGE Professional A3 5W-30
Optigear Synthetic 1510/320	POWER RS 4T 20W-50	EDGE Professional A3 5W-40
Optigear Synthetic 1710/100	POWER RS Racing 4T 10W-50	EDGE Professional A5 0W-30
Optigear Synthetic 1710/220	POWER RS Racing 4T 10W-60	EDGE Professional A5 5W-30
Optigear Synthetic 1710/320	POWER RS Racing 4T 5W-40	EDGE Professional C1 5W-30
Optigear Synthetic 1710/460	Power RS Scooter 2T	EDGE Professional C3 0W-30
Optigear Synthetic 800/100	POWER RS Scooter 4T 0W-30	EDGE Professional C4 5W-30
Optigear Synthetic 800/1000	Power RS Scooter 4T 5W-40	EDGE Professional CHN 5W-30
Optigear Synthetic 800/150	POWER1 4T 10W-30	EDGE Professional Diesel 5W-30
Optigear Synthetic 800/1500	POWER1 4T 10W-40	EDGE Professional DX 5W-30
Optigear Synthetic 800/220	POWER1 4T 15W-40	EDGE Professional E 0W-20
Optigear Synthetic 800/2200	POWER1 4T 15W-50	EDGE Professional E 0W-30
Optigear Synthetic 800/320	POWER1 4T 20W-50	EDGE Professional E C5 0W-20
Optigear Synthetic 800/460	POWER1 A747	EDGE Professional EC 0W-20
Optigear Synthetic 800/680	POWER1 Automatic 10W-40	EDGE Professional Fuel Saver 0W-20
Optigear Synthetic A 320	POWER1 Cruise 4T 15W-50	EDGE Professional H 0W-20
Optigear Synthetic ALR 150	POWER1 CRUISE 4T 20W-50	EDGE Professional H 5W-30
Optigear Synthetic CT 320	POWER1 Matic 10W-30	EDGE Professional H C2 0W-30
Optigear Synthetic PD 100 ES	POWER1 Matic 10W-40	EDGE Professional LL IV FE 0W-20
Optigear Synthetic PD 150 ES	POWER1 Matic 5W-40	EDGE Professional LL01 5W-30
Optigear Synthetic PD 220	POWER1 R 40	EDGE Professional LL03 5W-30
Optigear Synthetic PD 220 ES	POWER1 Racing 4T 10W-30	EDGE Professional LL04 5W-30
Optigear Synthetic PD 320	POWER1 Racing 4T 10W-40	EDGE Professional Longlife III 0W-30
Optigear Synthetic PD 320 ES	POWER1 Racing 4T 10W-50	EDGE Professional LongLife III 5W-30
Optigear Synthetic PD 460	POWER1 Racing 4T 10W-60	EDGE Professional OE 0W-20
Optigear Synthetic PD 460 ES	POWER1 Racing 4T 5W-30	EDGE Professional OE 5W-30
Optigear Synthetic PD 68 ES	POWER1 Racing 4T 5W-40	EDGE Professional OE 5W-40
Optigear Synthetic PD 680 ES	POWER1 Scooter 4T 0W-30	EDGE Professional OE-X 5W-30
Optigear Synthetic RO 150	POWER1 Scooter 4T 10W-40	EDGE Professional TWS 10W-60
Optigear Synthetic X 220	POWER1 Scooter 4T 5W-40	EDGE Professional V 0W-20
Optigear Synthetic X 320	POWER1 ULTIMATE 4T 10W-30	Ford - Castrol Magnatec Professional A5 5W-30
Optigear Synthetic X 320 AD	POWER1 ULTIMATE 4T 10W-40	Ford - Castrol Magnatec Professional E 5W-20
Optigear Synthetic X 320 WTO	POWER1 ULTIMATE 4T 10W-50	GTX Professional 10W-30
Optigear Synthetic X 460	POWER1 ULTIMATE 4T 5W-40	GTX Professional 10W-40
POWER 1	POWER1 ULTIMATE Automatic 5W-40	GTX Professional 10W-40 (BYD SM)
Mixed Carton POWER1 Automatic 10W-40 and Scooter Gear Oil 80W-90	POWER1 ULTIMATE Matic 10W-30	GTX Professional 15W-40
Power 1 2T	POWER1 ULTIMATE Scooter 10W-30	GTX Professional 15W-40 (NZ)
Power 1 4T 10W-50	POWER1 ULTIMATE Scooter 5W-40	GTX Professional 5W-30
Power 1 4T 15W-40	POWER1 ULTIMATE Sports Bike 15W-50	GTX Professional 5W-40
Power 1 4T 5W-40	POWER1 ULTIMATE Sports Bike 20W-50	GTX Professional 5W-40 C3
Power 1 Grand Prix 4T 10W-40	POWER1 ULTIMATE Superbike 10W-50	GTX Professional A3 5W-30

PROFESSIONAL (continued)	VECTON	Vietnam (continued)
GTX Professional CI-4+ 15W-40	Ford - Castrol Vecton 10W-40 F-Trucks E4/E7	Activ Scooter 10W-40 4-AT
GTX Professional COMPACT 15W-40	Vecton 10W-30 CH-4	Activ Vistra 20W-50
GTX Professional Diesel 10W-30	Vecton 10W-30 CK-4/NG	Aircol 299
GTX Professional Diesel 15W-40	Vecton 10W-30 FA-4	Aircol AMS 68
GTX Professional SN 0W-20	Vecton 10W-40 CK-4/E9	Aircol CM 100
GTX Professional SN 5W-30	Vecton 10W-40 E4/E7	Aircol CM 150
Magnatec Professional 0W-16	Vecton 10W-40 F-Trucks E4/E7	Aircol CM 32
Magnatec Professional 0W-20	Vecton 15W-40	Aircol CM 46
Magnatec Professional OW-8	Vecton 15W-40 CH-4	Aircol CM 68
Magnatec Professional 10W-30	Vecton 15W-40 CH-4 - ITWS CN	Aircol SR 32
Magnatec Professional 10W-40	Vecton 15W-40 CI-4 - ITWS CN	Aircol SR 46
Magnatec Professional 15W-40	Vecton 15W-40 CI-4 Plus	Almaredge BI
Magnatec Professional 5W-30	Vecton 15W-40 CI-4 Plus/E7	Alpha SP 100
Magnatec Professional 5W-40	Vecton 15W-40 CI-4 Plus/SL	Alpha SP 150
Magnatec Professional A1 5W-30	Vecton 15W-40 CI-4 Plus/SL/E7	Alpha SP 220
Magnatec Professional A3 10W-30	Vecton 15W-40 CI-4/E7	Alpha SP 320
Magnatec Professional A3 10W-40	Vecton 15W-40 CJ-4/E9	Alpha SP 460
Magnatec Professional A3 5W-40	Vecton 15W-40 CK-4	Alpha SP 68
Magnatec Professional A3/B4 5W-40	Vecton 15W-40 CK-4/E9	Alpha SP 680
Magnatec Professional A5 5W-30	Vecton 15W-40 CK-4/NG	Alphasyn EP 220
Magnatec Professional C2 0W-30	Vecton 20W-50 CH-4	Alphasyn EP 320
Magnatec Professional C2 5W-30	Vecton 20W-50 CH-4 - ITWS CN	Alphasyn EP 460
Magnatec Professional C3 5W-30	Vecton 20W-50 CI-4	Alphasyn GS 220
Magnatec Professional C3 5W-40	Vecton 20W-50 CI-4 - ITWS CN	Alphasyn GS 320
Magnatec Professional Diesel 10W-30 CI-4	Vecton 5W-30 F-Trucks CK-4	Anvol WG 46
Magnatec Professional DX 5W-30	Vecton 5W-30 F-Trucks E6/E9	BOT 130M
Magnatec Professional E 5W-20	Vecton 5W-40 CK-4/SN	BOT 352 B1
Magnatec Professional F 5W-20	Vecton Fuel Saver 10W-40	BOT 979 0W-30
Magnatec Professional MP 5W-30	Vecton Fuel Saver 5W-30 E6/E9	Brake Fluid DOT 3
Magnatec Professional MP DX 5W-30	Vecton Fuel Saver 5W-30 E7	Brake Fluid DOT 4
Magnatec Professional OE 5W-20	Vecton Long Drain 10W-30 CK-4	CRB 15W-40 CF-4
Magnatec Professional OE 5W-40	Vecton Long Drain 10W-30 E6/E9	CRB 20W-50 CF-4
Magnatec Professional S1 5W-30	Vecton Long Drain 10W-40	CRB Multi 15W-40 CH-4
Magnatec Professional T5W-30	Vecton Long Drain 10W-40 CK-4/E9	CRB Multi 20W-50 CF-4
Magnatec Professional T-Line Eco 0W-20	Vecton Long Drain 10W-40 E4/E7	CRB Multi 20W-50 CH-4
Magnatec Professional T-Line Extra 10W-40	Vecton Long Drain 10W-40 E6/E9	CRB Turbomax 15W-40 CI-4
Magnatec Professional T-Line Light 5W-30	Vecton Long Drain 10W-40 E7	CRB Turbomax 20W-50 CI-4
Magnatec Professional T-Line Neo 0W-16	Vecton Long Drain 10W-40 LS	Engine Shampoo
TRANSAQUA	Vecton Long Drain 10W-40 SLD3	Engine Shampoo - Two Wheelers
Transaqua DW	Vecton Long Drain 15W-40 CK-4/E9	Fork Oil 32
Transaqua HC 10	Vecton Long Drain 15W-40 NG	GTX 15W-40
Transaqua HT	Vecton Long Drain 5W-30 CK-4/SN	GTX 20W-50
Transaqua HT2	Vecton Long Drain 5W-30 E6/E9	GTX ULTRACLEAN 5W-30
Transaqua HT2-N	Vecton Long Drain 5W-30 FA-4/F8	High Temperature Grease
Transaqua SP	Vecton Multi-Fuel 15W-40 CK-4/NG	HLX 40
US AUTRAN	Vecton NG 15W-40	Honilo 981
Autran Syn 295	Vecton RX Fuel Saver 10W-40	Hyspin AWH-M 32
US TRANSYND	Vietnam	Hyspin AWH-M 46
TranSynd	Activ 2T	Hyspin AWH-M 68
TranSynd 668	Activ 4T 20W-40	Hyspin AWS 10
TranSynd RD	Activ 4T 20W-50	Hyspin AWS 100

Vietnam (continued)		
Hyspin AWS 22	TOYOTA Genuine Motor Oil 10W-40	
Hyspin AWS 32	TOYOTA Genuine Motor Oil 5W-30	
Hyspin AWS 46	Transmax Agri Trans Plus 80W	
Hyspin AWS 68	Transmax ATF Dex/Merc Multivehicle	
Hyspin HLP-Z 32	Transmax ATF DEXRON <sup>®</sup> -VI MERCON <sup>®</sup> LV Multivehicle	
Hyspin HLP-Z 46	Transmax Axle 80W-90	
Hyspin HLP-Z 68	Transmax Axle 85W-140	
Hyspin HVI 32	Transmax Manual 140	
Hyspin HVI 46	Transmax Manual 80W-90	
Hyspin HVI 68	Transmax Manual FE 75W	
Ilocut 480 A	Transmax Offroad 10W	
Ilocut 603	Transmax Offroad 30	
Ilocut EDM 180	Transmax Offroad 50	
LEXUS Genuine Motor Oil 5W-30	Transmax Offroad 60	
Magna CTX 88	Tribol GR 100-2 PD	
Magna RD 100	Vanellus Monograde 10W	
Magna SW 68	Vanellus Monograde 30	
Magnatec 10W-40	Vanellus Monograde 40	
Magnatec 5W-30	Vanellus Monograde 50	
Magnatec 5W-30 A5	Vanellus Multi 20W-50 CF-4	
Magnatec MZ 0W-20	Viscogen KL 15	
Magnatec Stop-Start 5W-30	Vietnam (continued)	
Magnatec SUV 5W-30	Alusol SL 41 XBB	
Molub-Alloy 777-2 ES	Alusol SL 51 XBB	
Molub-Alloy 860/460-2 ES	Alusol SL 61 XBB	
Molub-Alloy OG 8031/6000-00	Alusol SL 78 XBB	
Moly Grease	Hysol SL 20 XBB	
Motorcraft SAE 5W-30 Full Synthetic Engine Oil	Hysol SL 30 XBB	
Not Classified	Hysol SL 35 XBB	
Perfecto HT 5	Hysol SL 36 XBB	
Perfecto X 32	Hysol SL 37 XBB	
Perfecto X 46	Hysol SL 45 XBB	
Perfecto X 68	Hysol SL 50 XBB	
Perfecto XEP 46	Techniclean 45 XBC	
Promotion Materials NOT Included in GM	Techniclean 80 XBC	
Protector Series Scooter Gear Oil 80W-90	Techniclean 90 XBC	
Radicool SF Premix	Techniclean M XBB	
Spheerol AP 2		
Spheerol AP 3	_	
Spheerol BNS 2	_	
Spheerol CV	_	
Spheerol CV Performance		
Spheerol EPL 0		
Spheerol EPL 1		
Spheerol EPL 2		
Spheerol EPL 3		
Spheerol SY 4601		
Suzuki Genuine Oil 10W-40 SL MB		
Syntilo 9902		
Syntilo 9954		
TLX Xtra 404		

## PAS\_2060\_Qualifying\_Explanatory\_Statement\_-\_Castrol\_Carbon\_Neutral\_Products (External)

Final Audit Report

2023-09-20

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