SAFETY DATA SHEET

Tire Pyrolysis Carbon — Recovered Carbon Black (rCB)

Product identifier	Tire Pyrolysis Carbon (Recovered Carbon Black)
SDS number	178/PRC-DNF/SDS/VIII.2026
Version / Revision No.	1.4
Date of issue	18 August 2026
Date of revision	12 November 2026
Supersedes	Version 1.3 dated 26 October 2026

SECTION 1 — IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Product name	Tire Pyrolysis Carbon
Synonyms	Recovered Carbon Black (rCB); Pyrolytic Carbon Black (pCB)
Trade name / grade	PYROCARBON PC-380
CAS No. (main component)	**1333-86-4** (carbon black)
Substance identity	UVCB substance recovered from the pyrolysis of end-of-life tyres: amorphous carbon with an inorganic (ash) fraction and residual hydrocarbons. Not identical to virgin furnace carbon black. The CAS number above identifies the carbon component; see Sections 3 and 15.
Chemical family	Inorganic carbon / elemental carbon
Molecular formula	C (amorphous carbon with residual inorganic and hydrocarbon content)

Relevant identified uses

Filler and reinforcing agent for rubber compounding (tire, industrial rubber goods, conveyor belts, rubber mats); pigment and filler for plastics, coatings and inks.

Uses advised against

Not for food, pharmaceutical, cosmetic or feed applications. Not to be used as fuel.

Company identification

Role	Details
Exporter / Supplier	**PT. Drei Naftali Enkelkinder** The Manhattan Square Mid Tower Lantai 12 unit C-F Jl. TB Simatupang Kav 1S, Pasar Minggu, Jakarta 12560 Email: petrus.dwi@dnafcreative.id NIB: 8120019142174 NPWP: 0863148128017000
Emergency telephone	+62 811-161-0070

SECTION 2 — HAZARDS IDENTIFICATION

2.1 GHS classification of the substance

Not classified as hazardous under the Globally Harmonized System (UN GHS; Minister of Industry Regulation No. 23/M-IND/PER/4/2013) for any physical, health or environmental hazard class.

2.2 GHS label elements

Pictogram	None required
Signal word	None
Hazard statements	None

Recommended precautions (good industrial practice)

- Avoid generating and breathing dust.
- Wear gloves, work clothing and eye protection; use respiratory protection where dust control is inadequate (Section 8).
- Store in a dry, well-ventilated place with the container tightly closed.
- Dispose of contents and container in accordance with local, regional and national regulations.

SECTION 3 — COMPOSITION / INFORMATION ON INGREDIENTS

Substance (UVCB — substance of Unknown or Variable composition, Complex reaction product or Biological material).

Component	CAS No.	EC No.	Concentration (% w/w)
Carbon (fixed carbon; carbon black component)	1333-86-4	215-609-9 *	79.45 %
Ash (inorganic residue: SiO_2, ZnO, CaO, metal oxides)	Mixture	—	14.89 %
Residual hydrocarbons (as volatile matter)	Mixture	—	3.95 %
Moisture	7732-18-5	231-791-2	0.98 %

Proximate composition per Sucofindo (ID Survey) Report of Analysis No. E39567/CNBPAT dated 2 September 2026, method SNI 06-3730-1995. Total sulfur 1.34 % (XRF) is bound within the fractions above. Values are typical for the lot analysed; batch certificates of analysis are supplied with each shipment.

* CAS and EC numbers identify the carbon black component only. With an ash content of about 15 %, the product as a whole is not the same substance as virgin carbon black (EC 215-609-9).

Impurities: Polycyclic Aromatic Hydrocarbons (PAH) may be present as residual surface-adsorbed impurities. PAH content has not been measured on this product.

SECTION 4 — FIRST AID MEASURES

Route	Measure
Eyes	Rinse with clean water for at least 15 minutes, keeping eyelids open. Carbon black is not a chemical eye irritant; treat symptomatically for mechanical irritation. If symptoms persist, seek medical attention.
Inhalation	Move the person to fresh air and restore normal breathing as conditions permit. Short-term exposure to concentrations well above the occupational exposure limit may produce temporary discomfort of the upper respiratory tract, with coughing and wheezing. Removal from exposure is normally sufficient for symptoms to subside without lasting effects. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
Skin	Remove contaminated clothing, taking precautions to avoid making dust airborne. Wash skin with mild soap and water. Get medical attention if symptoms occur. Launder contaminated clothing before reuse; do not take work clothing home.
Ingestion	No adverse effects expected. Do not induce vomiting. Rinse mouth with water. If a large quantity has been swallowed or the person feels unwell, seek medical attention.

Most important symptoms and effects: Mechanical irritation of eyes and upper respiratory tract; skin drying and soiling. No cases of human sensitization reported.

Note to physician: Treat symptomatically. No specific antidote.

SECTION 5 — FIRE-FIGHTING MEASURES

Suitable extinguishing media	Water fog or spray (preferred), foam, carbon dioxide (CO_2), dry chemical, nitrogen (N_2), sand.
Unsuitable extinguishing media	Do not use a direct high-pressure water jet; it disperses dust.
Hazardous combustion products	Carbon monoxide (CO), carbon dioxide (CO_2), oxides of sulphur (SO_x), oxides of nitrogen (NO_x), and organic decomposition products.
Protective actions for fire-fighters	Wear full protective firefighting gear including self-contained breathing apparatus (SCBA).

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear personal protective equipment per Section 8. Avoid dust generation. Ensure adequate ventilation.
Environmental precautions	Prevent entry into drains, sewers and watercourses.
Containment and clean-up	Use vacuum equipment fitted with a HEPA filter, or lightly wet the material with water to suppress dust before sweeping. Do not use dry sweeping or compressed air. Scoop into a labelled container for recovery or disposal. Wash the residual film from the surface with water and detergent.
Reference	See Sections 8 and 13.

SECTION 7 — HANDLING AND STORAGE

Precautions for safe handling	Minimize dust generation and accumulation on surfaces. Keep airborne dust below the occupational exposure limit. Ground and bond containers and transfer equipment to prevent electrostatic discharge. Wash hands thoroughly after handling.
Conditions for safe storage	Store in tightly sealed containers at ambient temperature in a dry, well-ventilated area. Do not store near strong oxidizers.
Incompatible materials	Strong oxidizing agents (chlorates, bromates, nitrates, perchlorates), strong acids.
Packaging	Supplied in the following standard packaging: • 25 kg woven polypropylene (PP) bag with inner polyethylene (PE) liner • 500 kg flexible intermediate bulk container (FIBC / jumbo bag) with inner PE liner • 1,200 kg flexible intermediate bulk container (FIBC / jumbo bag) with inner PE liner Keep all packaging tightly closed. Store on pallets, clear of the floor and protected from moisture. Do not stack beyond the limit marked on the container. Handle FIBCs by the designated lifting loops only.

SECTION 8 — EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure controls

Engineering controls	Use process enclosures, local exhaust ventilation and/or other engineering controls to keep airborne dust below the applicable occupational exposure limit. Provide eyewash stations and safety showers in the work area.
Respiratory protection	Where dust levels may exceed the exposure limit, use a NIOSH/KOSHA-approved particulate respirator (minimum N95 / FFP2; use P100 / FFP3 for higher concentrations).
Hand protection	No special glove composition required. General-duty work gloves are adequate to prevent soiling and skin drying. A barrier cream may help.
Eye protection	Safety glasses with side shields, or goggles where dust levels are high.
Skin and body protection	General protective clothing covering exposed skin. Work clothing should be laundered daily and must not be taken home.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Property	Value
Appearance	Fine black powder
Colour	Black
Odour	Slight rubber-like odour
Odour threshold	N/A
Melting / freezing point	N/A
Boiling point	N/A
Flash point	N/A
Evaporation rate	N/A
Flammability	Combustible solid; not readily flammable
Vapour pressure	N/A
Vapour density	N/A
Relative density	1.7 – 1.9 g/cm^3
Bulk (pour) density	250 – 400 kg/m^3
Solubility in water	Insoluble
Partition coefficient (n-octanol/water)	N/A
Decomposition temperature	>400 °C
Viscosity	N/A

9.2 Proximate analysis and sulfur — accredited laboratory results

Parameter	Unit	Result	Method
Moisture content	%	0.98	SNI 06-3730-1995
Ash content	%	14.89	SNI 06-3730-1995
Volatile matter	%	3.95	SNI 06-3730-1995
Fixed carbon	%	79.45	SNI 06-3730-1995
Total sulfur	%	1.34	XRF

Source: Sucofindo (ID Survey) Report of Analysis No. **E39567/CNBPAT**, dated 2 September 2026, issued by Sub Dept. Oil, Gas & Chemical Laboratory, Cibitung; sample received 20 August 2026, analysed 20 August – 1 September 2026; client PT. Drei Naftali Enkelkinder; sample type Carbon Black Pyrolysis, powder. Certificate reference 38010326001109.

9.3 Self-heating test (UN Test N.4): laboratory result

Test	Conditions	Result
Self-heating substances (Division 4.2), UN Manual of Tests and Criteria 33.4.6, Test N.4	100 mm cube, oven temperature 140 °C, 24 hours	**Negative.** Maximum temperature at sample centre 143.0 °C. Not classified as a self-heating substance.

Source: PT. Carsurin Tbk, Cikarang Branch laboratory, Report No. **261861.2096**, dated 11 November 2026; sample received 4 November 2026, tested 4 to 5 November 2026; client PT. Drei Naftali Enkelkinder; sample description Tire Pyrolysis Carbon (Recovered Carbon Black, rCB).

SECTION 10 — STABILITY AND REACTIVITY

Reactivity	Not reactive under normal ambient conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Hazardous polymerization will not occur. Contact with strong oxidizers may cause a violent reaction.
Conditions to avoid	Temperatures above 400 °C; open flames and other ignition sources.
Incompatible materials	Strong oxidizing agents (chlorates, bromates, nitrates, perchlorates); strong acids.
Hazardous decomposition products	On heating above the decomposition temperature — carbon monoxide (CO), carbon dioxide (CO_2), oxides of sulphur (SO_x), and organic products of decomposition.

SECTION 11 — TOXICOLOGICAL INFORMATION

Acute toxicity

Route	Result
Oral	LD_{50} (rat) > 8,000 mg/kg
Dermal	LD_{50} (rabbit) > 3,000 mg/kg
Inhalation	LC_{50} (rat, 4 h) > 4.6 mg/L

All data in this section are read-across from carbon black (CAS 1333-86-4).

Skin corrosion / irritation	Not irritating (mechanical irritation and drying only).
Serious eye damage / irritation	Not a chemical irritant; mechanical irritation only.
Respiratory or skin sensitization	Not a sensitizer. No cases of human sensitization reported.
Germ cell mutagenicity	Not classified. Carbon black is negative in bacterial reverse mutation assays (read-across).
Reproductive toxicity	Not classified. No evidence of reproductive toxicity.
STOT — single exposure	Not classified.
STOT — repeated exposure	Not classified. Lung effects in rats (inflammation, fibrosis) occurred under lung-overload conditions not relevant to humans at workplace exposure levels.
Aspiration hazard	Not classified.

SECTION 12 — ECOLOGICAL INFORMATION

Ecotoxicity	Insoluble in water and of low bioavailability. No significant adverse effects on aquatic organisms expected.
Persistence and degradability	Not biodegradable. Chemically inert and persistent in the environment.
Bioaccumulative potential	Not expected to bioaccumulate. Log K_{ow} not applicable (insoluble inorganic solid).
Mobility in soil	Immobile. Adsorbs onto soil and sediment.
PBT and vPvB assessment	Not assessed for this product. Carbon black does not meet the PBT/vPvB criteria (read-across).
Other adverse effects	May cause physical fouling and discoloration of surface water and soil. Prevent release to drains and watercourses.

SECTION 13 — DISPOSAL CONSIDERATIONS

Product	Do not release to sewers or watercourses. May be incinerated in a suitably permitted facility, or landfilled, in accordance with national and local regulations. In Indonesia, dispose of in accordance with PP 22/2021 on Environmental Protection and Management.
Contaminated packaging	Empty containers retain product residue. Do not reuse for other purposes. Dispose of or recycle in accordance with the same regulations as the product.

SECTION 14 — TRANSPORT INFORMATION

Mode	Classification
UN number	Not applicable
Self-heating (Division 4.2)	Not a self-heating substance: UN Test N.4 negative (Section 9.3)
IMDG (sea)	Not classified as dangerous goods
IATA (air)	Not classified as dangerous goods
ADR / RID (road / rail)	Not classified as dangerous goods
Marine pollutant	No

SECTION 15 — REGULATORY INFORMATION

Republic of Indonesia

- Government Regulation **PP 22/2021** — Environmental Protection and Management.
- Minister of Industry Regulation **No. 23/M-IND/PER/4/2013** — Globally Harmonized System of Classification and Labelling of Chemicals.
- Minister of Manpower Regulation **No. 5/2018** — Occupational Safety and Health in the Working Environment.
- Export classification: **HS 2803.00.41** — "Carbon black, of a kind used for rubber processing". Export duty: nil.

International

- **EU:** No harmonised classification under CLP Regulation (EC) 1272/2008 for carbon black. ECHA has accepted a dedicated substance identity for carbon recovered from spent tyres, EC 954-402-4 ("Amorphous carbon and silicon dioxide recovered from processing of spent tyres"). This product is not registered under EU REACH.
- **Republic of Korea:** Registration under the Act on Registration and Evaluation of Chemicals (K-REACH) is the responsibility of the Korean importer.

Chemical safety assessment: Not performed.

SECTION 16 — OTHER INFORMATION

Abbreviations used

Abbreviation	Meaning
ASTM	American Society for Testing and Materials
CAS	Chemical Abstracts Service
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IMDG	International Maritime Dangerous Goods Code
LD_{50} / LC_{50}	Lethal Dose / Lethal Concentration, 50%
PAH	Polycyclic Aromatic Hydrocarbons
PBT / vPvB	Persistent, Bioaccumulative and Toxic / very Persistent, very Bioaccumulative
rCB	Recovered Carbon Black
SCBA	Self-Contained Breathing Apparatus
SNI	Standar Nasional Indonesia (Indonesian National Standard)
STOT RE	Specific Target Organ Toxicity — Repeated Exposure
UN	United Nations
UVCB	Substance of Unknown or Variable composition, Complex reaction product or Biological material
XRF	X-Ray Fluorescence spectrometry

Disclaimer

The information in this Safety Data Sheet is based on data available to the supplier at the date of issue and is believed to be correct. It is provided in good faith as guidance on the safe handling, use, storage, transport and disposal of the product, and does not constitute a warranty or specification of quality. The product is intended for industrial use only, by trained personnel. Users must satisfy themselves as to the suitability and completeness of this information for their own particular application and are responsible for compliance with all applicable laws and regulations.

— END OF SAFETY DATA SHEET —