



PRODUCT STEWARDSHIP INFORMATION FOR CARBON BLACK PRODUCTS JULY 2023

To our valued customers

Committed to product stewardship excellence, Himadri is pleased to provide the following technical and regulatory information on our carbon black products.

All rubber and specialty carbon black products produced by Himadri are covered by this product stewardship information document including: KOHLENSTOFF®, ASTM Grades, BARONX, COLORX, KLAREX, JETEX, VIRTEX, ONYX, ELECTRA, KP-series, and KC-series carbon blacks.

SUBSTANCE INFORMATION

Carbon Black (amorphous) 100%

Common name(s), synonym(s) of the substance: furnace black

Chemical Abstract Service (CAS) Number: 1333-86-4

HAZARD CLASSIFICATION INFORMATION

Global Harmonized System (GHS): According to the criteria in GHS (UN) for classifying hazardous substances, Carbon Black is not classified for any physico-chemical, toxicological or ecotoxicological endpoint. See product safety data sheet for information on “Other Hazards.”

USA: According to the criteria in OSHA HCS (2012) for classifying hazardous substances, Carbon Black is not classified for any toxicological or ecotoxicological endpoint. As a combustible dust it is designated by OSHA as a hazardous chemical. See product safety data sheet for information on “Labelling” and “Hazards Not Otherwise Classified (HNOC).”

Canada: According to the criteria in the Canadian Hazardous Product Regulation (HPR) known as Worker Hazardous Material Information System 2015 (WHMIS 2015) carbon black is not classified for any health hazards. Carbon Black is classified as a Combustible Dust.

European Union (EU): Carbon black is not classified as a dangerous substance by the European Directive 67/548/EEC and its amendments, and subsequently is not classified as a hazardous substance under CLP-Regulation (EC) No. 1272/2008 as amended.

CARCINOGENICITY CLASSIFICATION INFORMATION

International Agency for Research on Cancer (IARC) Classification: In 2006 IARC re-affirmed its 1995 finding that there is “inadequate evidence” from human health studies to assess whether carbon black causes cancer in humans. IARC concluded that there is “sufficient evidence” in experimental animal studies for the carcinogenicity of carbon black. IARC’s overall evaluation is that carbon black is “possibly carcinogenic to humans (Group 2B).” This conclusion was based on IARC’s guidelines, which generally



require such a classification if one species exhibits carcinogenicity in two or more animal studies (IARC, 2010).

American Conference of Governmental Industrial Hygienists (ACGIH®) Cancer Classification: Confirmed Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

U.S. National Toxicology Program (NTP) has not listed carbon black as a carcinogen.

U.S. Occupational Safety and Health Administration (U.S. OSHA) has not listed carbon black as a carcinogen.

U.S. National Institute for Occupational Safety and Health (NIOSH) criteria document (1978) on carbon black recommends only carbon blacks with polycyclic aromatic hydrocarbon contamination levels greater than 0.1% (1,000 ppm) be considered suspect carcinogens.

California Environmental Protection Agency, the Office of Environmental Health Hazard Assessment (OEHHA) added “carbon black (airborne, unbound particles of respirable size)” (CAS No. 1333-86-4) to the Proposition 65 substances list on February 21, 2003. This listing, triggered by the “authoritative body” mechanism in the California Code of Regulations, was based solely on IARC’s 1996 classification of carbon black as a Group 2B carcinogen. Please note, all three listing qualifiers – “airborne,” “unbound” (not bound within a matrix), and “respirable size” (10 micrometers or less in diameter) - must be met for carbon black to be considered a California Proposition 65 substance.

GLOBAL CHEMICAL INVENTORY STATUS

Carbon black (CAS # 1333-86-4) is listed on the following inventories:

Australia – Australian Inventory of Industrial Chemicals (AIIC)

Canada – Canadian Domestic Substances List (DSL)

China – Chinese Inventory (IECSC)

Europe – European Inventory of Existing Commercial Chemical Substances (EINECS) (215-609-9)

Japan – Japanese Existing and New Chemical Substances (ENCS) (METI No. 5-3328)

Japan – Inventory of Substances Notified under the Industrial Safety and Health Law

Korea – Korean Existing Chemicals List (KECL) (KE-04682)

New Zealand – New Zealand Hazardous Substances and New Organisms Act (HSNO – HSR002801)

Philippine – Philippine Inventory of Chemicals and Chemical Substances (PICCS)

Taiwan – Taiwan National Existing Chemical Substances Inventory (NECSI)

United States – United States Toxic Substances Control Act (TSCA) Inventory; designated as “active”

EU REACH REGULATION (EC No. 1907/2006)

Registration

Himadri Specialty Chemical Ltd. has registered carbon black (CAS# 1333-86-4, EINECS# 215-609-9), as a substance, in accordance with the requirements of the EU REACH regulation.

EU REACH registration number: 01-2119384822-32



Registration Update

Effective January 1, 2020, the European Commission has adopted revisions to the EU REACH Annexes to address substances in nanoforms (Regulation (EU) 2018/1881, amendment of REACH Annexes I, III and VI-XII). In October 2020, the Carbon Black REACH Consortium (CB4REACH) submitted an updated carbon black registration dossier to comply with the amended annexes for nanoforms. Himadri is a member of CB4REACH

Substances of Very High Concern

“The authorisation process [under EU REACH] aims to ensure that substances of very high concern (SVHCs) are progressively replaced by less dangerous substances or technologies where technically and economically feasible alternatives are available.”¹ To this end, European Authorities have developed a Candidate List with new substances added to the List periodically. The most recent additions to the Candidate List have been communicated by the European Chemical Agency on January 17, 2023.

Per EU REACH, SVHC should be documented if present at a concentration exceeding 0.1% wt in a substance. Himadri does not analyze its carbon black products for the presence of SVHC. To the best of our knowledge Himadri's carbon black products do not contain any SVHC above the declared threshold of 0.1% wt. However, please note, the Candidate List does include 9 polycyclic aromatic hydrocarbons (PAHs). PAHs are present on the surface of all carbon black products in trace amounts as impurities. If present in Himadri's carbon black products, the concentration of the 9 PAHs is expected to be less than 0.1% wt for each PAH.

Only Representative

Please contact your sales representative for information on Himadri's Only Representative.

UK REACH REGULATION

UK REACH came into force on December 31, 2020 after the United Kingdom officially left the EU. To comply with the requirements of UK REACH, Himadri has appointed ITS Testing Services, LTD of the UK as its Only Representative. On behalf of Himadri, ITS Testing Services, LTD has submitted a downstream-user import notification (DUIN) to the UK Competent Authority and has received notification of submission.

TURKEY REACH REGULATION (N°30105)

In June 2017, the Ministry of Environment and Urbanization (MoEU) of Turkey published the Registration, Evaluation, Authorization and Restriction of Chemicals (known as KKDİK) requiring manufacturers and/or importers of chemicals to pre-register/register chemical substances in accordance with the terms defined in the Act. Himadri has appointed Intertek Test Hizmetleri A.Ş. of Turkey as its Only Representative. Intertek Test Hizmetleri A.Ş. has pre-registered carbon black on behalf of Himadri.

¹ European Chemical Agency website: <https://echa.europa.eu/substances-of-very-high-concern-identification-explained>



KOREA REACH REGULATION

The Act on the Registration and Evaluation of Chemicals (known as Korea REACH) came into force in January 2015 with a subsequent amendment coming into force on January 1, 2019. In accordance with the terms defined in the Act, Nam & Nam International Co., Ltd., acting as the Only Representative under Article 38(2) of the Act, has completed the late pre-registration of carbon black on behalf of Himadri.

STATUS AS A NANOMATERIAL

USA: Carbon black is not subject to reporting under the US Environmental Protection Agency (EPA) final rule establishing one-time reporting and recordkeeping requirements for chemical substances manufactured, imported, or processed at the nanoscale (82 Fed. Reg. 3641, Jan. 12, 2017)

EU: Carbon black meets the definition of a “nanomaterial” per the 10 June 2022 Commission Recommendation on the definition of nanomaterial which updated 18 October 2011 EU Commission Recommendation on the definition of nanomaterial (2011/696/EU)

France: Carbon black meets the definition of a “substance at nanoscale” per Decree no. 2012-232 of 17 February 2012 on the annual declaration on substances at nanoscale in application of article

ISO: Carbon black meets the definition of a “nanostructured material” (i.e., a material having internal or surface structure in the nanoscale) as per the International Organization for Standardization’s (ISO) Technical Specification 80004-1 of 2015 definition

IMPURITY INFORMATION

Organic and Inorganic Substances

Himadri does not analyze for these substances routinely. The substances listed below are not added intentionally to Himadri’s carbon black products. To the best of our knowledge these substances are not used in our production or handling processes. These substances are not expected to be present as an impurity in Himadri’s carbon black products above trace concentrations (i.e., low ppm or less).

- Acrylamide
- Acrolein
- Ammonia
- Asbestos
- Azo/diarylide compounds, and dyes/colorants (generating aromatic amines)
- Azodicarbonamide, semicarbazide
- Alkylphenol (including nonylphenol and TNPP) or alkylphenoethoxylates (Nonylphenol ethoxylates)



- Benzophenone and its derivatives
- Biocidal products including those mentioned in Reg. (EU) No 528/2012
- Bisphenol-A, Bisphenol-F and Bisphenol-S
- Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)
- Butylated hydroxyanisole (BHA) and Butylated hydroxytoluene (BHT)
- Colophony
- Dimethyl fumarate (DMF), dibutyl fumarate
- Endocrine Disrupters, i.e., phthalates and bisphenol-A
- Epoxy derivatives (BADGE, BFDGE, NOGE, etc.) including those mentioned in Reg. 1895/2005
- 2-Ethylhexanoic acid, ethoxyquin, ITX, thiurams
- Ethyleneimine (Aziridine)
- Flame retardants
- Formaldehyde
- Furans
- Fragrances, flavoring or essential oil
- Glycol ethers
- Hydroquinone
- Hazardous air pollutants (HAPs), as defined by United States Clean Air Act
- Halogenated hydrocarbons including among others: brominated hydrocarbons (including Polybrominated biphenyls (PBBs), Polybrominated diphenyls ethers (PDBEs), aliphatic chlorinated hydrocarbons, dioxins, flame retardants, halogenated phenols, fluorinated hydrocarbons including per- and polyfluoroalkyl substances (PFAS), PCB's, PCT's, PFOS and PFOA (EU Commission Decision 2006/122/EC), PVC, PVDC and Vinyl chloride, Triclosan and ozone depleting substances (ODS) like CFC's and HCFC's
- Halogens (fluorine, chlorine, bromine, etc.)
- Isocyanates
- Latex
- Melamine, cyanuric acid
- Mineral oil saturated (MOSH), mineral oil aromatic hydrocarbons (MOAH)
- Nitrite
- Nitrosamines
- N-Ethyl-o/p-toluenesulfonamide (NETSA)
- Optical brighteners (e.g., stilbenes, etc.)
- Organic based pigments (rhodamine, etc.)
- Organotin compounds
- Organomercury derivatives
- Oxiranes (e.g., Epichlorohydrin (ECH) also called (chloromethyl) oxirane)
- Ozone depleting substances (ODS), such as CFCs and HCFCs
- Parabens
- Perchlorate and derivatives
- Pentachlorophenol (PCP)



- Pentanedione
- Perfluorooctane sulfonates (PFOS) and perfluorooctanoic acid (PFOA) and its salts (as regulated by EU Commission Decision 2006/122/EC)
- Perfluorophosphinates (PFPIAs) and Perfluorophosphonates (PFPAAs)
- Pesticides, insecticides, fungicides (including Dimethyl Fumarate – DMF as regulated by EU Directive 2009/251/EC and Hexachlorobenzene, triclosan, triazole and its derivatives, etc.), rodenticides, herbicides and biocides
- Persistent organic pollutants (POPs) listed in the Stockholm convention, commission regulation (EU) No 757/2010 and commission regulation (EU) No 756/2010 of 24 August 2010 and regulation (EC) No 850/2004
- Phenols
- Phthalates and phthalate compounds
- Plasticizers
- Radioactive substances
- Resin acids and rosin acids (and derivatives)
- Solvents (aromatic or aliphatic solvents)
- Substances listed in Annex III of Rotterdam Convention
- Tri (1-aziridiny) phosphine oxide
- Tris (2,3-dibromopropyl) phosphate (TRIS)
- Volatile organic compounds (VOCs)

Endocrine Disruptors

Himadri's carbon black products do not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Allergens

Himadri does not test its carbon black products for the presence of allergens. To the best of our knowledge, Himadri's carbon black products are not expected to contain any of the allergens mentioned in:

- Annex IIIa of the European Directive 2000/13/EC and its 3 subsequent amendments
- US FDA Food Allergen Labelling & Consumer Protection Act 2004 (FALCPA)

Genetically Modified Materials

Himadri's carbon black products are **not** manufactured from any products of animal or plant origin, nor any by-products of animal or plant origin. To the best of our knowledge, Himadri's carbon black products do not contain any:

- Genetically Modified (GMO) products or materials
- bovine materials or any materials associated with the development of Bovine Spongiform Encephalopathy (BSE) or Creutzfeldt-Jakobs Disease (CJD)



- Endangered species listed in the CITES Appendices (I, II, and III) - (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) - or the IUCN Red List of Threatened Species

FOOD CONTACT INFORMATION

United States

21 Code of Federal Regulations 177.2600: Carbon black is permitted for food contact when used as a filler in rubber articles intended for repeated use under with the following restrictions:

- Total carbon black (channel process and furnace process) in the rubber may not exceed 50% by weight of the rubber products.
Himadri's carbon black products are furnace process blacks
- Not for use in contact with infant formula and human milk (see TOR 2016-002)

21 CFR 178.3297 Colorants for Polymers: Himadri's KOHLENSTOFF® ONYX 300F specialty carbon black meets the requirement for use as a colorant for polymers

LIMITATION: For use at levels not to exceed 2.5 percent by weight of the polymer

Contact your Himadri representative for more information.

European Union

Resolution AP (89) 1: Himadri's carbon black products meet the requirements as follows:

- Resolution AP (89) 1 permits the use of carbon black as a coloring additive in plastic consumer articles coming into contact with food. The following requirements apply:
 - Toluene extractable: maximum 0.15 %,
 - Metals shall not exceed certain limits (Sb: 0.05%, As: 0.01%, Ba: 0.01%, Cd: 0.01%, Cr: 0.1%, Pb: 0.01%, Hg: 0.005%, and Se: 0.01%)
 - Aromatic amines shall not exceed 500 ppm

Regulation EU 10/2011: Please contact your Himadri representative on which carbon blacks meet the following requirements:

- Regulation EU 10/2011 has harmonized the purity criteria applicable to carbon blacks (Ref. No. 42080) used in plastics coming into contact with food. The same purity criteria and restrictions are applicable to carbon black in all the countries of the European Union as follows:
 - Primary particles of 10 – 300 nm which are aggregated to a size of 100 –1200nm which may form agglomerates within the size distribution of 300nm – mm
 - Toluene extractable: maximum 0.1 %, determined according to ISO 6209 method.
 - UV absorption of cyclohexane extract at 386 nm: < 0.02 AU for a 1 cm cell or < 0.1 AU for a 5 cm cell, determined according to a generally recognized method of analysis.
 - Benzo(a)pyrene content: max 0.25 mg/kg carbon black



- Maximum use level of carbon black in the polymer is 2.5% w/w.

Other: There are no EU harmonized regulations for other food contact applications such as rubber, inks, or coatings. Consult the applicable laws of each member state. Please contact your Himadri representative for more information.

REGULATION RELATED TO POLYCYCLIC AROMATIC HYDROCARBONS (PAH)

The European Union (EU) Commission has enacted Regulation EU 1272/2013 amending Annex XVII to the REACH Regulation which limits the content of eight polycyclic aromatic hydrocarbons (PAHs) in the accessible plastic or rubber parts of certain consumer articles sold in the EU after December 27, 2015.

Limits are placed on the following PAHs:

- Benzo(a)pyrene
- Benzo(e)pyrene
- Benzo(a)anthracene
- Chrysene
- Benzo(b)fluoranthene
- Benzo(j)fluoranthene
- Benzo(k)fluoranthene
- Dibenzo(a,h)anthracene

Please contact your local Himadri representative for further information.

REGULATIONS RELATED TO HEAVY METALS

The EU directives, US regulations, and industry standards noted below limit the concentration of heavy metals and other substances in a finished consumer good/product or in a raw material, such as carbon black:

- Packaging and Packaging Waste:
 - EU Directive 94/62/EC
 - US Model Toxics in Packaging Legislation [formerly Coalition of Northeastern Governors (CONEG)]
- End of Life Vehicles:
 - EU Directive 2000/53/EC, modified by Commission Decision 2002/52/EC
- Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)
 - EU Directive 2011/65/EU
- US Consumer Product Safety Improvement Act of 2008
- Toy Norms
 - European Toy Standard EN 71-3
 - European Toy Standard EN 71-9
 - EU 2009/48/EC
 - ASTM F963-03 Standard Consumer Safety Specifications for Toy Safety



- Mercosur Standard NM 300-2:2002 – Safety of Toys, Part 3: Migration of Certain Elements
- Global Automotive Declarable Substances List (GADSL)

The heavy metals and other substances specified by the directives, regulations and standards noted are not added intentionally to our carbon black products. To the best of our knowledge these substances are not used in our production or handling processes. Himadri does not analyze routinely for the presence of these substances. However, based on our knowledge of the manufacturing process, and analytical data of several carbon black products these substances are not expected to be present as an impurity in Himadri's carbon black products above the threshold concentrations noted below:

- 0.1% by weight – lead, mercury, hexavalent chromium, polybrominated biphenyls (PBBs), and polybrominated diphenyl ethers (PDBEs), including Decabromodiphenyl ether (Deca-BDE)
- 0.01% by weight – cadmium
- 0.1 % by weight in homogenous materials for each of the following phthalates: bis(2-ethylhexyl)phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP)

Should the directive, regulation or standard place a concentration restriction on the final finished consumer product/good, Himadri recommends the said product/good be tested to determine compliance.

USES NOT APPROVED OR ENDORSED

- Himadri does not support the use of its carbon black products in any cosmetics application
- Himadri's carbon black products are not approved for medical applications
- Himadri's are manufactured by the pyrolysis of heavy fuel oils and cannot be used in the manufacture of pharmaceuticals or edible inks
- Carbon black is not mentioned on any of the positive lists of the European Pharmacopoeia section 3.1, Materials Used for Manufacture of Containers. Therefore, Himadri's carbon black products may not be used
- Not recommended as a human tattooing pigment

Consult your Himadri representative for additional information or updates to the information provided.

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