HP 3D HR PA12 S Arkema Powder

The HP 3D HR PA12 S Arkema powder is a high-reusability polyamide powder formulation designed to meet worldwide regulatory requirements and to address a broad range of health and environmental considerations throughout the entire life cycle of a print from production to disposal.

Regulatory Summary

Global Chemical Inventories

Customers are responsible for ensuring that they comply with any legal requirements relating to their export, import, or distribution of HP 3D HR PA12 S Arkema powder supplies. Most of the necessary notifications and registrations to enable import and sale of HP 3D HR PA12 S Arkema powder in countries and regions with chemical inventories relevant to HP's supply chain have been completed.[1] Please contact HP's Sustainability and Compliance Center for guidance on specific importation and distribution-related inquiries for countries/regions with tiered registration schemes or where customers may be required to take other actions to comply with chemical regulatory requirements related to export, import, or distribution of HP 3D HR PA12 S Arkema powder supplies.[2]

Chemicals of Concern

The HP 3D HR PA12 S Arkema powder DOES NOT contain the following regulated materials as intentionally added substances or known contaminants at quantities exceeding *de minimis* levels[3]:

- Arsenic, antimony, soluble barium, cadmium, chromium, cobalt, mercury, lead, nickel, copper, and selenium
- Restricted azo colorants [4]
- Halogenated organics
- Per- and polyfluoroalkyl substances (PFAS), including perflurooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS)
- Polychlorinated terphenyls (PCTs)
- Brominated flame retardants
- Natural rubber latex

Chemical Regulations

The HP 3D HR PA12 S Arkema powder DOES NOT contain intentionally added components nor known contaminants exceeding *de minimis* levels[5] in the following categories:

- Substances regulated under Annex XIV of EU REACH (authorizations) or restricted under Annex XVII of EU REACH (restrictions)

[1] *Chemical notifications on the HP 3D HR PA12 S Arkema powder have not yet been completed for the Philippines.*
[2] *A new support ticket can be submitted to the Sustainability and Compliance Center (SCC) at http://sustainability.ext.hp.com/en/support/home.*
[3] *HP assesses known contaminants (non-intentionally added substances, NIAS) against the most conservative de minimis level published by authoritative sources such as: EU REACH, EFSA, German BfR, US EPA, CA Proposition 65, and Korea Biocidal Products Regulation (KBPR).*
[4] *Regulation (EC) No 1907/2006 (REACH) Annex XVII (article 67) restricts the use of azo colorants that break down to aromatic amines known to cause cancer.*
[5] *HP assesses known contaminants (non-intentionally added substances, NIAS) against the most conservative de minimis level published by authoritative sources such as: EU REACH, EFSA, German BfR, US EPA, CA Proposition 65, and others.*

- Substances identified as "very high concern" (SVHC) by the “candidate list” established under Article 59(1) of EU REACH and last published June 2023[6]
- California Proposition 65 listed chemicals present in concentrations exceeding labeling thresholds
- Carcinogens, mutagens, or reproductive toxicants (CMRs) specifically listed in the EuPIA Exclusion Policy for Printing Inks and Related Products, Groups A-G, 4th edition, March. 2021

Health and Environmental Performance

Transportation and Waste

The HP 3D HR PA12 S Arkema powder is non-flammable, non-combustible[7] , and does not require special handling, storage, or transportation-related conditions. This formulation is not classified as Dangerous Goods in accordance with international modes of transport (IATA, IMDG, U.S. DOT, and/or ADR) and do not contain listed marine pollutants.

Combustible dust may form, and dust accumulation should be prevented to minimize explosion hazards. Refer to the Safety Data Sheet for further information.

The HP 3D HR PA12 S Arkema does not contain the following substances above *de minimis* levels[8] and/or has characteristics associated with hazardous waste:

- Human health and/or ecological toxicity characteristics, as defined by the EU Classification, Labelling, and Packaging (CLP) Regulation 1272/2008/EC

Recyclability

The HP 3D HR PA12 S Arkema powder is supplied in containers of which approximately 80% of the weight of the used empty container is a recyclable cardboard. For additional information regarding recycling and take back options for 3D supplies, please contact the HP 3D Printing materials team at 3dmaterials@hp.com.

Air Quality

HP 3D HR PA12 S Arkema supplies for use with HP Multi Jet Fusion technology devices are designed to enable customers to maintain a high level of (Indoor) Air Quality performance. For instance, HP 3D HR PA12 S Arkema powder has no intentionally added Hazardous Air Pollutant (HAP) substances as per SDS[9] as related to the Clean Air Act (CAA) Section 112 HAPs List.

Specialty Applications

It is the responsibility of each customer to determine that its use of HP 3D HR PA12 S Arkema material is suitable for the customer’s intended applications and compliant with relevant regulatory requirements for the final product.

Automotive

It is the responsibility of each customer to determine that its use of HP 3D HR PA12 S Arkema material is suitable for the customer’s intended applications and compliant with relevant regulatory requirements for the final product.

The HP 3D HR PA12 S Arkema powder does not contain intentionally added substances and heavy metals listed in the Global Automotive Declarable Substance List (GADSL). The HP 3D HR PA12 S Arkema powder is not currently available in the IMDS.

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[6] *The EU REACH candidate list can be accessed at https://echa.europa.eu/candidate-list-table*
[7] *The HP 3D HR PA12 S Arkema powder is not classified as flammable or combustible liquids under the USDOT or international transportation regulations. Testing per the Pensky-Martins Closed Cup method demonstrated flash point greater than 110° C.*
[8] *HP assesses known contaminants (non-intentionally added substances, NIAS) against the most conservative de minimis level published by authoritative sources such as: EU REACH, EFSA, German BfR, US EPA, CA Proposition 65, and others.*
[9] *As stated in HP Safety Data Sheets (SDS), selected based on the following settings from the HP website: United States/English (country/language). SDS documents are available at www.hp.com/go/msds.*

Parts printed on an HP 3D printer using the HP 3D600/700 Agents and a similar HP 3D HR PA12 powder were tested according to 49 CFR 571.302[10] (Federal Motor Vehicle Safety Standard (FMVSS) 302 for Flammability of Interior Materials-Passenger Cars, Multipurpose Passenger Vehicles, Trucks, and Buses). The burn rate of the samples was determined to be 0 mm/min (i.e., the flame extinguished when the gas flow was cut off), which indicates that parts printed with these materials may pass the Flammability of Interior Materials Test.

For additional information about HP 3D HR PA12 S Arkema powder, please contact the HP 3D Printing materials team at 3dmaterials@hp.com.

Medical

It is the responsibility of each customer to determine that its use of HP 3D HR PA12 S Arkema material is suitable for the customer's intended applications and compliant with relevant regulatory requirements for the final product.

The HP 3D HR PA12 S Arkema Powder is not medical grade as per the Arkema Medical Policy[11] and is therefore not authorized by Arkema to be used in medical device applications that are in contact with the body and/or circulating bodily fluids. Arkema also prohibits the use of any Arkema products in medical device applications that are implanted in the body and/or in contact with bodily fluids or tissues for greater than 30 days. Further additional information about the HP 3D HR PA12S Arkema powder, please contact the HP 3D Printing materials team at 3dmaterials@hp.com.

The current HP 3D600/700 Fusing and Detailing Agents contain 2-pyrrolidone (2P) (CAS 616-45-5), which is classified as a Category 1B reproductive toxicant according to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS, as implemented by the EU Classification, Labeling, and Packaging Regulation No 1272/2008/EC (CLP), US HazCom 2012, and other country-specific GHS regulations. Printed parts using a similar HP 3D HR PA12 powder and HP 3D600/700 Fusing and Detailing Agents were analyzed using GC/MS, and 2P was found to be present at >0.1% by weight. There are currently no alternative HP 3D Polymer agents commercially available without the 2P ingredient.

Toys

It is the responsibility of each customer to determine that its use of HP 3D HR PA12 S Arkema material is suitable for the customer's intended applications and compliant with relevant regulatory requirements for the final product.[12]

The current HP 3D600/700 Fusing and Detailing Agents contain 2-pyrrolidone (2P) (CAS 616-45-5), which is classified as a Category 1B reproductive toxicant according to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS, as implemented by the EU Classification, Labeling, and Packaging Regulation No 1272/2008/EC (CLP), US HazCom 2012, and other country-specific GHS regulations. Printed parts using a similar HP 3D HR PA12 powder and HP 3D600/700 Fusing and Detailing Agents were analyzed using GC/MS, and 2P was found to be present at >0.1% by weight. There are currently no alternative HP 3D Polymer agents commercially available without the 2P ingredient.

HP Design for Environment (DfE) Program

In 1992, HP adopted a pioneering company-wide Design for the Environment program that integrates environmental impact criteria in the design of every product and solution.

[10] This test may be similar to or representative of test protocols required in other jurisdictions, including the Canadian Motor Vehicle Safety Standard (CMVSS) 302, the Society of Automotive Engineers (SAE) J369, and the International Standards Organization (ISO) 3795. It is up to the manufacturer of the final product to ensure all testing is completed appropriately for the intended application and/or market.

[11] The Arkema Medical Device Policy can be found at https://www.arkema.com/global/en/social-responsibility/innovation-and-sustainable-solutions/responsible-product-management/medical-device-policy/.

[12] Sample parts printed with a similar HP 3D HR PA12 powder and the HP 3D600/700 Fusing and Detailing Agents did not detect heavy metals, phthalates, or bisphenol A. Testing has not been completed with this HP 3D HR PA12 S Arkema powder. Customers should assess the materials for compliance with all pertinent toy regulations in relevant jurisdictions.

Additional Resources

More information about HP's sustainable impact programs can be found at: **hp.com/go/report**

HP SDSs can be found at: **hp.com/go/ecodata**

For more information or questions, please visit the HP Sustainability and Compliance Center at: **hp.com/go/SCC**

Legal Disclaimer

Worldwide chemical regulatory requirements are subject to change without notice. Thus, HP will issue updates to this document periodically. Customers should consult their HP account manager to verify any updated information and to obtain the latest version of this document.