



SAFETY DATA SHEET

1. Identification

Important information	*** This Safety Data Sheet is only authorised for use by HP for HP Original products. Any unauthorised use of this Safety Data Sheet is strictly prohibited and may result in legal action being taken by HP. ***
Product identifier	AN5S8Series
Other means of identification	
Synonyms	: HP 3D HR PA12 FR Powder
Recommended use	Materials to be processed in HP 3D MJF equipment only.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
	HP Inc. 1501 Page Mill Road Palo Alto, CA 94304-1112 United States
Telephone	650-857-1501
HP Inc. health effects line	
(Toll-free within the US)	1-800-457-4209
(Direct)	1-760-710-0048
HP Inc. Customer Care Line	
(Toll-free within the US)	1-800-474-6836
(Direct)	1-208-323-2551
Email:	sustainability@hp.com

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	
Hazard symbol	None.
Signal word	Warning
Hazard statement	May form combustible dust concentrations in air.
Precautionary statement	
Prevention	Take precautionary measures against static discharge. Use with adequate ventilation. Avoid generation or accumulation of dust.
Response	If inhaled, remove to fresh air. Get medical attention if symptoms persist. IN CASE OF FIRE, use water spray or fog, foam, dry chemical or CO2. Collect in a chemical waste container. Use only vacuum cleaners approved for combustible dust collection.
Storage	Not available.
Disposal	Not available.
Hazard(s) not otherwise classified (HNOC)	May form combustible dust concentrations in air. Risk of skin burns caused by hot melt.
Supplemental information	This material is considered hazardous under the OSHA Hazard Communication Standard criteria, based on hazard(s) not otherwise classified.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Polyamide		Proprietary	95-100
Titanium dioxide		13463-67-7	<1

Composition comments This product has been evaluated using criteria specified in 29 CFR 1910.1200 (Hazard Communication Standard).

4. First-aid measures

Inhalation	If dust from the material is inhaled, remove the affected person immediately to fresh air. Move to fresh air in case of accidental inhalation of vapors or decomposition products. If breathing is difficult, give oxygen. Oxygen or artificial respiration if needed. Consult a physician for specific advice.
Skin contact	Wash the skin immediately with soap and water. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily.
Eye contact	Dust: Wash well-open eyes immediately, abundantly and thoroughly with water. Remove particle remaining under the eyelids. If irritation persists, consult a doctor. On contact with hot product: Cool eyes rapidly with cold water after contact with molten polymer. Continue to rinse for at least 15 minutes. Get medical attention immediately.
Ingestion	If swallowed, do NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.
Most important symptoms/effects, acute and delayed	No experiences of acute or chronic damages in humans have been made yet.
General information	Risk of skin burn caused by hot melt. Do not leave the victim unattended. Remove victim immediately from source of exposure. Victim to lie down in the recovery position, cover and keep him warm.

5. Fire-fighting measures

Suitable extinguishing media	Water spray, foam, dry powder or carbon dioxide.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	May be released in case of fire: carbon monoxide, carbon dioxide, nitric oxides, organic products of decomposition. Under certain fire conditions, traces of other toxic products may occur.
Special protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire fighting equipment/instructions	Do not use a solid stream of water. A solid stream of water can cause a dust explosion. Fire fighting equipment should be thoroughly decontaminated after use.
General fire hazards	Dust clouds generated during handling and/or storage can form explosive mixtures with air. Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. As with any dry material, pouring this material or allowing it to free-fall or to be conveyed through chutes or pipes can accumulate and generate electrostatic sparks, potentially causing ignition of the material itself, or of any flammable materials which may come into contact with the material or its container.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	In case product dust is released: Dust mask
Methods and materials for containment and cleaning up	Sweep up or vacuum up spillage and collect in suitable container for disposal. If a vacuum is used, the motor must be rated as dust explosion-proof. Dispose of in compliance with federal, state, and local regulations.
Environmental precautions	Prevent further leakage or spillage. Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

7. Handling and storage

Precautions for safe handling	Avoid contact with skin and eyes. Avoid breathing dust. Prevent dust accumulation to minimize explosion hazard. Inside and outside the equipment should be cleaned regularly with an explosion-protected vacuum cleaner to avoid dust accumulation. Do not sweep the dust or try to remove it with a compressed-air gun. Remove contaminated clothing and wash the skin thoroughly with soap and water after work.
Conditions for safe storage, including any incompatibilities	Store away from moisture and heat to maintain the technical properties of the product. Eliminate sources of ignition. Do not expose to heat or store above 60C.

8. Exposure controls/personal protection

Occupational exposure limits

Also see Exposure guidelines.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	PEL	15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	2.5 mg/m3	Respirable finescale particles
		0.2 mg/m3	Respirable nanoscale particles

US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Components	Type	Value
Titanium dioxide (CAS 13463-67-7)	IDLH	5000 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Exposure Limits

Titanium dioxide - US OSHA as amended (03/2016) (TWA:Z-3): 15 mg/m3 (Total dust)
Titanium dioxide - US OSHA as amended (03/2016) (TWA:Z-3): 5 mg/m3 (Respirable fraction)
Titanium dioxide - US OSHA as amended (03/2016) (TWA:Z-3): 50 millions of particles per cubic foot of air (Total dust)
Titanium dioxide - US OSHA as amended (03/2016) (TWA:Z-3): 15 millions of particles per cubic foot of air (Respirable fraction)

Appropriate engineering controls HP recommends the use of HP accessories for unpacking 3D parts and refilling the build chamber. Read the following, in particular, if other methods are used. Dust clouds generated during handling and/or storage can form explosive mixtures with air. Dust explosion characteristics vary with the particle size, particle shape, moisture content, contaminants, and other variables. Check that all equipment is properly grounded and installed to satisfy electrical classification requirements. As with any dry material, pouring this material or allowing it to fall freely or be conveyed through chutes or pipes can accumulate and generate electrostatic sparks, potentially causing ignition of the material itself, or of any flammable materials which may come into contact with the material or its container.

Utilize appropriate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide adequate ventilation to minimize exposures or to control exposure levels to below airborne exposure limits, including as needed the use of local mechanical exhaust ventilation at sources of air contamination such as open process equipment. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., ensure that there is no leakage from the equipment). Refer to the ACGIH ventilation manual, NFPA Standard 91 and NFPA Standard 654 for design of exhaust system and safe handling.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields.

Skin protection	
Hand protection	Recommended gloves: Nitrile 6 mm minimum thickness. Wear protective heat-insulating gloves during thermal processing. Any areas of skin covered with dust must be washed immediately with soap and water as the powder draws out natural moisture from the skin. Use barrier cream regularly.
Other	Processing of this product releases vapors or fumes which may cause skin irritation. It is a good industrial hygiene practice to minimize skin contact. Wash thoroughly after handling.
Respiratory protection	Avoid breathing dust. Avoid breathing processing fumes or vapors. Where airborne exposure is likely or airborne exposure limits are exceeded, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components and substances released during processing.
Thermal hazards	In thermal processing: Risk of skin burns. Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Powder. Solid.
Physical state	Solid.
Form	Powder.
Color	Natural color.
Odor	Typical
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	329 - 374 °F (165 - 190 °C)
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor density	Not available.
Vapor density	Not available.
Solubility(ies)	
Solubility (water)	insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	>662 °F (>350 °C)
Decomposition temperature	>518 °F (>270 °C) TG (thermal gravimetric analysis)
Viscosity	Not available.
Other information	The substance or mixture is not classified as self heating. The substance or mixture is not classified as pyrophoric. The substance or mixture does not emit flammable gases in contact with water. Not corrosive to metals
Bulk density	450 g/l
Explosive properties	The substance or mixture is not classified as self heating. The substance or mixture is not classified as pyrophoric. Dust explosion properties: ST-1
Flammability (flash back)	This product is not flammable.
Oxidizing properties	Not oxidizing.
Particle size	> 3 - < 100 µm
9.2. Other information	
Density	1.00 g/cm³

10. Stability and reactivity

Reactivity	Under normal conditions: stable.
Chemical stability	The product is stable under normal handling and storage conditions.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Take measures to mitigate material spillage and avoid potential ignition sources such as ESD (ElectroStatic Discharges), flames, and sparks. Do not smoke nearby.
Incompatible materials	Oxidizing materials, acids, strong bases, water and high humidity.
Hazardous decomposition products	Decomposition products on thermal decomposition, carbon monoxide, carbon dioxide, Nitrogen oxides (NOx), organic products of decomposition.

11. Toxicological information

Information on likely routes of exposure

Inhalation	At high temperature, products of thermal decomposition can be irritating to respiratory system.
Skin contact	May be considered as comparable to a similar product for which experimental results are: Non irritating to skin.
Eye contact	May be considered as comparable to a similar product for which experimental results are: Not irritating to the eyes.
Ingestion	May be considered as comparable to a similar product for which experimental results are: Slightly harmful by ingestion.

Symptoms related to the physical, chemical and toxicological characteristics

Not available.

Information on toxicological effects

Acute toxicity	ATE (oral): Slightly harmful by ingestion.
Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met. Titanium dioxide not irritant in rabbit (OECD 405)
Respiratory or skin sensitization	
Respiratory sensitization	Based on available data, the classification criteria are not met.
Skin sensitization	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

Titanium dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met.
Further information	Complete toxicity data are not available for this specific formulation

12. Ecological information

Ecotoxicity	No ecotoxicity data noted for the ingredient(s).
Persistence and degradability	Not available.
Bioaccumulative potential	Not available.
Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Do not allow this material to drain into sewers/water supplies. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.
-----------------------	--

14. Transport information

DOT

UN number	Not available.
UN proper shipping name	Not Regulated
Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
Packing group	Not available.
Environmental hazards	
Marine pollutant	No
Special precautions for user	Not available.

IATA

UN number	Not available.
UN proper shipping name	Not Regulated
Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
Packing group	Not available.
Environmental hazards	No
Special precautions for user	Not available.

IMDG

UN number	Not available.
UN proper shipping name	Not Regulated
Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
Packing group	Not available.
Transport hazard class(es)	
Marine pollutant	No
EmS	Not available.
Special precautions for user	Not available.

ADR

UN number	Not available.
UN proper shipping name	Not Regulated
Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
Hazard No. (ADR)	Not available.
Tunnel restriction code	Not available.
Packing group	Not available.
Environmental hazards	No
Special precautions for user	Not available.

Further information Not a dangerous good under DOT, IATA, ADR, IMDG, or RID.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC code: Not applicable.

15. Regulatory information

US federal regulations	US EPA TSCA Inventory: All chemical substances in this product comply with all rules or orders under TSCA. All ingredients are listed or exempt US TSCA 12(b): Does not contain listed chemicals.
------------------------	---

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical No

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

No intentionally added HAP substances.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations**California Proposition 65**

WARNING: This product can expose you to chemicals including titanium dioxide, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Titanium dioxide (CAS 13463-67-7)

Listed: September 2, 2011

Other information

US TSCA 6(h): Based on a review of the product composition, this product is not known to contain TSCA Section 6(h) Persistent, Bioaccumulative, and Toxic Chemicals (PBTs).

Regulatory information

HP complies with chemical regulatory requirements in chemical substance notification laws, where applicable. All chemical substances are notified or exempt from notification or listed in the inventory as existing substances in the following countries: US (TSCA), Canada (DSL/NDL), Australia (AICIS), Japan (ISHL, ENCS), Philippines (PICCS), New Zealand (NZIoC) and China (IECSC). For guidance on importation and/or additional requirements for registration schemes such as EAEU, EU, South Korea, Turkey, UK, India and Taiwan, please contact the Sustainability and Compliance Center (sustainability@hp.com).

Clean Air Act (CAA)

No internationally added HAP substances.

16. Other information, including date of preparation or last revision

Issue date 01-Oct-2024

Revision date 20-Dec-2024

Version # 03

Other information This SDS was prepared in accordance with USA OSHA Hazard Communications regulation (29 CFR 1910.1200).

Disclaimer

This Safety Data Sheet document is provided without charge to customers of HP. Data is the most current known to HP at the time of preparation of this document and is believed to be accurate. It should not be construed as guaranteeing specific properties of the products as described or suitability for a particular application. This document was prepared to the requirements of the jurisdiction specified in Section 1 above and may not meet regulatory requirements in other countries.

This safety data sheet is meant to convey information about HP inks (toners) provided in HP Original ink (toner) supplies. If our Safety Data Sheet has been provided to you with a refilled, remanufactured, compatible or other non-HP Original supply please be aware that the information contained herein was not meant to convey information about such products and there could be considerable differences from information in this document and the safety information for the product you purchased. Please contact the seller of the refilled, remanufactured or compatible supplies for applicable information, including information on personal protective equipment, exposure risks and safe handling guidance. HP does not accept refilled, remanufactured or compatible supplies in our recycling programs.

Revision information Stability and reactivity: Conditions to avoid

Explanation of abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
COC	Cleveland Open Cup
DOT	Department of Transportation
EPCRA	Emergency Planning and Community Right-to-Know Act (aka SARA)
Eye Dam.	Serious eye damage
Eye Irrit.	Eye Irritation
Flam. Liq.	Flammable liquids
Flam. Sol.	Flammable solids
Lact.	Effects on or via lactation
Muta.	Germ cell mutagenicity
IARC	International Agency for Research on Cancer
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
Ox. Liq.	Oxidising liquids
Ozone	Hazardous to the ozone layer
PEL	Permissible Exposure Limit
Press. Gas	Gases under pressure
RCRA	Resource Conservation and Recovery Act
REC	Recommended
REL	Recommended Exposure Limit
Repr.	Reproductive toxicity
Resp. Sens.	Respiratory sensitization
SARA	Superfund Amendments and Reauthorization Act of 1986
Skin Corr.	Skin corrosion
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitization
STEL	Short-Term Exposure Limit
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure
TCLP	Toxicity Characteristics Leaching Procedure
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act