Material Safety Data Sheet

化学品安全技术说明书 中英文对照

Product 产品	Haiflon PPA 9028F	**Revision 版本**	3.0
Issue date 编制日期	25 October 2026 2026 年 10 月 25 日	**Language 语言**	English and Chinese 英文及中文

SECTION 1 Identification 第1部分 化学品及企业标识

Product identifier: Haiflon PPA 9028F	**产品标识：** Haiflon PPA 9028F
Polymer processing additive, fluoropolymer-based (VDF-HFP copolymer with polyester polyol carrier; active ingredient >= 97%)	聚合物加工助剂，氟聚合物基（VDF-HFP 共聚物，聚酯多元醇载体；有效成分 ≥ 97%）
CAS number: 31831-53-5; 9011-17-0	**CAS 号：** 31831-53-5；9011-17-0
Polymer processing additive dosed at low levels in polyolefin (PE/PP) extrusion to eliminate melt fracture and die buildup, and to reduce die pressure. High-temperature grade for polyolefin processing up to approximately 330 °C.	聚合物加工助剂，在聚烯烃（PE/PP）挤出中以低添加量使用，可消除熔体破裂和模口积料，并降低模头压力。耐高温级，适用于最高约 330 °C 的聚烯烃加工。
Uses advised against: Do not use for permanent medical implantation, medical or dental devices, or food-contact applications without a specific safety assessment and written approval.	**不建议用途：** 未经专项安全评估及书面批准，不得用于人体永久植入、医疗或牙科器械以及食品接触用途。
Supplier: Shanghai FluoroChem Industry Co., Ltd. No. 3660 Jinhai Road, Fengxian Dist., Shanghai 200065, China **Email:** info@haiflon.com Website: www.haiflon.com	**供应商：** Shanghai FluoroChem Industry Co., Ltd. 中国上海市奉贤区金海公路 3660 号，邮编 200065 **电子邮箱：** info@haiflon.com 网站：www.haiflon.com
Emergency telephone: +86 13918561110 (09:00-17:00 China local time)	**应急联系电话：** +86 139 18561110（中国当地时间 09:00-17:00）

SECTION 2 Hazard Identification 第2部分 危险性概述

GHS classification: Not classified as hazardous based on available information.	**GHS 危险性分类：** 根据现有资料，本品不属于 GHS 危险化学品分类。
Label elements: No hazard pictogram, signal word or hazard statement required.	**标签要素：** 无需危险象形图、警示词或危险性说明。
Other hazards: Hot material can cause severe thermal burns. Spilled powder or granules may create a slipping hazard.	**其他危险：** 高温物料可造成严重热灼伤。散落的粉末或颗粒可能造成滑倒危险。
Thermal decomposition: Overheating or fire may generate fine particulate fumes and toxic or corrosive gases, including hydrogen fluoride, carbonyl fluoride and other fluorinated decomposition products. Inhalation may cause polymer fume fever or serious respiratory injury.	**热分解危险：** 过热或火灾可能产生细微颗粒烟雾以及有毒或腐蚀性气体，包括氟化氢、羰基氟化物及其他含氟分解产物。吸入后可能引起聚合物烟雾热或严重呼吸道损伤。
Special hygiene warning: Do not contaminate cigarettes or tobacco with resin, dust or processing residues. Wash hands before smoking, eating or drinking.	**特别卫生警示：** 严禁树脂、粉尘或加工残留物污染香烟及烟草。吸烟、进食或饮水前应彻底洗手。

SECTION 3 Composition and Information on Ingredients 第3部分 成分及组成信息

Substance: Polyester polyol; Vinylidene fluoride-hexafluoropropylene copolymer (VDF-HFP)	**物质名称：** 聚酯多元醇；偏氟乙烯-六氟丙烯共聚物（VDF-HFP）
CAS number: 31831-53-5; 9011-17-0	**CAS 号：** 31831-53-5；9011-17-0

Concentration: Polyester polyol 70%; Vinylidene fluoride-hexafluoropropylene copolymer 30%	**含量：** 聚酯多元醇70%；偏氟乙烯-六氟丙烯共聚物（VDF-HFP）30%
Note: Hydrogen fluoride, carbonyl fluoride, perfluoroisobutylene and other fluorinated gases are possible thermal decomposition products; they are not ingredients of the supplied material.	**说明：** 氟化氢、羰基氟化物、全氟异丁烯及其他含氟气体可能在热分解时产生，并非所供应物料的组成成分。

SECTION 4 First Aid Measures 第4部分 急救措施

Inhalation: Move the exposed person to fresh air. Keep at rest and under observation. Obtain medical attention if symptoms occur or persist. After exposure to decomposition fumes, seek medical advice promptly even if symptoms are delayed.	**吸入：** 将接触者移至空气新鲜处，保持休息并观察。如出现或持续不适，应就医。接触热分解烟气后，即使症状延迟出现，也应尽快寻求医疗建议。
Skin contact: Wash with soap and water. For contact with molten resin, cool immediately with plenty of cold water. Do not remove solidified polymer from the skin. Obtain medical treatment for thermal burns.	**皮肤接触：** 用肥皂和清水清洗。如接触熔融树脂，应立即用大量冷水冷却。不要强行剥离已凝固在皮肤上的树脂，并对热灼伤进行医疗处理。
Eye contact: Rinse cautiously with clean water for at least 15 minutes. Remove contact lenses if easy to do. Obtain medical attention if irritation, pain or blurred vision persists.	**眼睛接触：** 用清水小心冲洗至少 15 分钟。如方便，取下隐形眼镜。如刺激、疼痛或视力模糊持续，应就医。
Ingestion: Rinse mouth. Do not induce vomiting unless directed by medical personnel. Seek medical advice if symptoms occur.	**食入：** 漱口。除非医务人员指示，不要催吐。如出现不适，应寻求医疗建议。
Most important symptoms: Dust may cause mechanical irritation. Decomposition fumes may cause fever, chills, cough, chest tightness, shortness of breath and other flu-like symptoms. Pulmonary edema may be delayed after severe exposure.	**最重要症状：** 粉尘可能引起机械性刺激。热分解烟气可能导致发热、寒战、咳嗽、胸闷、呼吸困难及类似流感的症状。严重接触后肺水肿可能延迟发生。
Advice to physician: Treat symptomatically. Consider observation for delayed respiratory effects following significant exposure to thermal decomposition products.	**对医生的建议：** 对症治疗。大量接触热分解产物后，应考虑观察可能延迟出现的呼吸系统影响。

SECTION 5 Firefighting Measures 第5部分 消防措施

Suitable extinguishing media: Use water spray, foam, dry chemical or carbon dioxide as appropriate for the surrounding fire.	**适用灭火剂：** 根据周围火情使用水雾、泡沫、干粉或二氧化碳灭火剂。
Specific hazards: The resin is difficult to ignite, but heating or fire can generate toxic and corrosive fumes, including hydrogen fluoride, carbonyl fluoride, carbon monoxide and other fluorinated compounds.	**特别危险性：** 本树脂难以点燃，但受热或燃烧时可产生有毒及腐蚀性烟气，包括氟化氢、羰基氟化物、一氧化碳及其他含氟化合物。
Protective equipment: Firefighters must wear self-contained breathing apparatus and full protective clothing. Avoid inhalation of smoke and combustion gases.	**消防人员防护：** 消防人员必须佩戴正压式自给式呼吸器并穿全身防护服，避免吸入烟雾及燃烧气体。
Additional advice: Cool exposed containers with water spray. Fire residues and contaminated extinguishing water may be acidic and must be handled with chemical-resistant protection.	**其他建议：** 用水雾冷却受火灾威胁的容器。火灾残留物及受污染的灭火水可能呈酸性，处理时应采取耐化学品防护措施。

SECTION 6 Accidental Release Measures 第6部分 泄漏应急处理

Personal precautions: Restrict access, provide ventilation and wear appropriate protective equipment. Avoid contact with eyes and hot material. Powder on floors is a slipping hazard.	**人员防护：** 限制无关人员进入，保持通风并佩戴适当防护用品。避免眼睛接触及接触高温物料。地面散落粉末存在滑倒危险。
Environmental precautions: Prevent release to drains, sewers, surface water and soil.	**环境保护措施：** 防止产品进入排水沟、下水道、地表水和土壤。
Cleanup methods: Sweep or vacuum up mechanically without generating dust. Place in a suitable labelled container for reuse, recycling or disposal.	**清理方法：** 采用清扫或真空方式进行机械收集，避免扬尘。装入适当并有标识的容器中，以便回用、回收或处置。

SECTION 7 Handling and Storage 第7部分 操作处置与储存

Safe handling: Use good general ventilation and local exhaust at thermal processing equipment. Avoid overheating and dust generation. Keep the product away from ignition sources. Do not smoke in processing or storage areas.	**安全操作：** 在热加工设备处设置良好的全面通风和局部排风。避免过热及粉尘产生。远离点火源。加工及储存区域禁止吸烟。
Processing precautions: Do not use an open flame or torch to remove resin from equipment unless an engineered exhaust system and suitable respiratory protection are in place. Follow validated processing conditions.	**加工注意事项：** 除非已设置工程排风系统并使用适当呼吸防护，否则不得使用明火或喷灯清除设备上的树脂。应遵循经验证的加工条件。
Storage conditions: Keep containers tightly closed in a cool, dry and well-ventilated place. Protect from heat, direct sunlight, moisture, dust, oil and contamination by other polymers.	**储存条件：** 容器保持密闭，储存在阴凉、干燥、通风良好的场所。避免热源、阳光直射、潮气、粉尘、油污及其他聚合物污染。
Hygiene measures: Wash hands after handling and before breaks. Do not eat, drink or smoke while handling the product.	**卫生措施：** 操作后及休息前洗手。操作本品时不得进食、饮水或吸烟。

SECTION 8 Exposure Controls and Personal Protection 第8部分 接触控制和个体防护

Control parameters: No specific occupational exposure limit has been established for the supplied polymer. Applicable limits for dust and thermal decomposition products must be observed under local regulations.	**控制参数：** 尚未为所供应聚合物制定专门的职业接触限值。应遵守当地法规中关于粉尘及热分解产物的适用限值。
Engineering controls: Provide effective local exhaust ventilation at compounding, extrusion, equipment cleaning and any operation that may generate dust, fumes or decomposition products.	**工程控制：** 在配混、挤出、设备清理以及可能产生粉尘、烟气或分解产物的操作处设置有效的局部排风。
Eye and face protection: Wear safety glasses. Use chemical splash goggles and a face shield where molten resin may splash.	**眼面防护：** 佩戴安全眼镜。存在熔融树脂飞溅风险时，应佩戴化学防护眼罩和面屏。
Hand and skin protection: Wear suitable protective gloves. Use heat-resistant gloves, protective clothing and footwear when contact with hot or molten resin is possible.	**手和皮肤防护：** 佩戴适当的防护手套。可能接触高温或熔融树脂时，应使用耐热手套、防护服和防护鞋。

Respiratory protection: Normally not required when ventilation is adequate. If dust or fumes cannot be controlled, use respiratory protection selected by a competent person according to the contaminants, exposure level and local requirements. Supplied-air respiratory protection may be required for decomposition fumes or emergencies.	**呼吸防护：**通风充分时通常不需要。如粉尘或烟气无法有效控制，应由专业人员根据污染物种类、接触水平及当地要求选择呼吸防护用品。接触热分解烟气或紧急情况下，可能需要使用供气式呼吸防护。

SECTION 9 Physical and Chemical Properties 第9部分 理化特性

Physical state and form: Solid powder (< 10 mesh)	**物理状态和形态：**固体粉末（< 10 目）
Colour: White to off-white	**颜色：**白色至类白色
Odour: Odourless	**气味：**无味
Melting point: Not applicable (amorphous polymeric additive)	**熔点：**不适用（无定形聚合物助剂）
Bulk density: 0.6-0.8 g/cm^3	**堆密度：**0.6-0.8 g/cm^3
Water solubility: Insoluble	**水中溶解度：**不溶
Volatile content (105 °C, 1 h): < 1%	**挥发分（105 °C，1 h）：**< 1%
Flammability: Not classified as flammable	**可燃性：**不属于易燃物分类
Flash point: Not applicable	**闪点：**不适用
Boiling point, vapour pressure and vapour density: Not applicable to a non-volatile solid polymer	**沸点、蒸气压及蒸气密度：**不适用于非挥发性固体聚合物
pH, partition coefficient and explosive limits: No data available or not applicable	**pH、分配系数及爆炸极限：**无可用数据或不适用

SECTION 10 Stability and Reactivity 第10部分 稳定性和反应性

Reactivity: No hazardous reaction is expected under normal conditions of storage and use.	**反应性：**在正常储存和使用条件下，预计不会发生危险反应。
Chemical stability: Stable under recommended storage and processing conditions.	**化学稳定性：**在建议的储存和加工条件下稳定。
Conditions to avoid: Excessive heat, prolonged overheating, flame, sparks and processing outside validated conditions.	**应避免的条件：**过高温度、长时间过热、明火、火花以及超出经验证条件的加工。
Incompatible materials: Finely divided metal powders such as aluminium and magnesium; fluorine and strong fluorinating oxidizers such as chlorine trifluoride.	**禁配物：**铝粉、镁粉等细分散金属粉末；氟气及三氟化氯等强氟化氧化剂。
Hazardous decomposition products: Overheating or fire may produce particulate fumes, hydrogen fluoride, carbonyl fluoride, carbon monoxide, monomers, perfluoroisobutylene and other toxic or corrosive fluorinated compounds. The products and quantities depend on temperature and conditions.	**危险分解产物：**过热或燃烧可能产生颗粒烟雾、氟化氢、羰基氟化物、一氧化碳、单体、全氟异丁烯及其他有毒或腐蚀性含氟化合物。分解产物的种类和数量取决于温度及具体条件。

SECTION 11 Toxicological Information 第11部分 毒理学信息

Acute toxicity: Based on available information, the classification criteria are not met. No product-specific acute toxicity value is available.	**急性毒性：**根据现有资料，不符合分类标准。暂无本产品特定的急性毒性数值。
Likely routes of exposure: Inhalation of dust or thermal decomposition fumes; eye or skin contact; accidental ingestion.	**可能的接触途径：**吸入粉尘或热分解烟气、眼睛或皮肤接触以及意外食入。
Dust exposure: Dust or fine particles may mechanically irritate the eyes, nose, throat and respiratory tract.	**粉尘接触：**粉尘或细小颗粒可能对眼睛、鼻、咽喉和呼吸道造成机械性刺激。
Thermal decomposition fumes: Inhalation may cause polymer fume fever with delayed flu-like symptoms. Severe exposure may cause respiratory inflammation or pulmonary edema and requires prompt medical evaluation.	**热分解烟气：**吸入后可能引起聚合物烟雾热，并出现延迟的类似流感症状。严重接触可能造成呼吸道炎症或肺水肿，需要及时进行医疗评估。
Skin and eye effects: Solid resin is not expected to be absorbed through the skin. Molten resin causes thermal burns. Particles may cause mechanical eye irritation.	**皮肤和眼睛影响：**固体树脂预计不会经皮肤吸收。熔融树脂可造成热灼伤。颗粒可能引起眼睛机械性刺激。
Sensitisation, mutagenicity, carcinogenicity and reproductive toxicity: Based on available information, the classification criteria are not met.	**致敏性、致突变性、致癌性和生殖毒性：**根据现有资料，不符合分类标准。

SECTION 12 Ecological Information 第12部分 生态学信息

Ecotoxicity: No product-specific aquatic toxicity data are available. Low acute aquatic toxicity is expected because the polymer is insoluble in water, but release to the environment should be prevented.	**生态毒性：**暂无本产品特定的水生毒性数据。由于该聚合物不溶于水，预计急性水生毒性较低，但仍应防止释放到环境中。
Persistence and degradability: The polymer is expected to be persistent and not readily biodegradable.	**持久性和降解性：**预计该聚合物具有持久性，不易生物降解。
Bioaccumulation and mobility: No relevant data are available.	**生物蓄积性和迁移性：**暂无相关数据。
PBT and vPvB assessment: No product-specific assessment is available.	**PBT 和 vPvB 评估**暂无本产品特定的评估资料。

SECTION 13 Disposal Considerations 第13部分 废弃处置

Waste treatment: Reuse or recycle uncontaminated material where practicable. Dispose of waste through an authorised contractor in accordance with applicable national and local regulations.	**废物处理：**在可行情况下回用或回收未受污染的物料。应委托有资质的单位，并按照国家及当地适用法规处置废物。
Incineration: Incinerate only in a facility designed for fluoropolymer waste and equipped to control hydrogen fluoride and other acidic combustion products. Do not burn in open air.	**焚烧：**仅可在适合处理含氟聚合物废物并能控制氟化氢及其他酸性燃烧产物的设施中焚烧。禁止露天焚烧。
Packaging: Empty packaging may retain residue. Recycle or dispose of it according to local requirements.	**包装物：**空包装可能残留物料，应根据当地要求回收或处置。

SECTION 14 Transport Information 第14部分 运输信息

UN number: Not applicable	**联合国危险货物编号：**不适用
UN proper shipping name: Not applicable	**联合国运输名称：**不适用
Transport hazard class: Not applicable	**运输危险性类别：**不适用

Packing group: Not applicable	**包装类别：**不适用
ADR RID ADN: Not regulated as dangerous goods	**ADR RID ADN:**不按危险货物管理
IMDG: Not regulated as dangerous goods; not a marine pollutant	**IMDG：**不按危险货物管理；不属于海洋污染物
IATA: Not regulated as dangerous goods	**IATA：**不按危险货物管理
Special precautions: Keep packages closed, dry and protected from damage, heat and direct sunlight. Secure the cargo against movement.	**特殊注意事项：**包装应保持密闭、干燥，防止破损、受热和阳光直射，并采取措施防止货物移动。

SECTION 15 Regulatory Information 第15部分 法规信息

GHS status: The supplied polymer is not classified as hazardous based on available information.	**GHS 状态：**根据现有资料，所供应聚合物不属于危险化学品分类。
Chemical safety assessment: A product-specific chemical safety assessment has not been carried out for this document.	**化学安全评估：**本文件未进行本产品特定的化学安全评估。
Jurisdictional requirements: Inventory, registration, workplace, environmental, food-contact, medical-use and other regulatory requirements vary by country. The user or importer must verify the requirements applicable to the destination and intended use.	**地区法规要求：**不同国家对化学品名录、注册、职业健康、环境、食品接触、医疗用途及其他事项的要求不同。使用者或进口商必须确认目的国及预定用途所适用的法规要求。

SECTION 16 Other Information 第16部分 其他信息

Revision information: Version 3.0, issued 25 October 2026. Third bilingual issue for Haiflon PPA 9028F.	**修订信息：**版本 3.0，编制日期 2026 年 10 月 25 日。Haiflon PPA 9028F 第三版中英文对照文件。
Abbreviations: ADR - road transport of dangerous goods; IMDG - maritime dangerous goods; IATA - air transport; PBT - persistent, bioaccumulative and toxic; vPvB - very persistent and very bioaccumulative; GHS - Globally Harmonized System.	**缩略语：**ADR-道路危险货物运输；IMDG-国际海运危险货物规则；IATA-国际航空运输协会；PBT-持久性、生物蓄积性和毒性；vPvB-高持久性和高生物蓄积性；GHS-全球化学品统一分类和标签制度。
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