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DTF SILICONE FILM T1

1.Information

Description	DTF Silicone Film T1
Material	PET
Type	Double sided
Size	30cm*100m/roll, 60cm*100m/roll, 120cm*100m/roll A3 silicone sheets 30cmx42cm, 100sheets/bag
Peeling Method	Hot peel/Warm peel/Cold peel
Temp when transfer	150-160°C
Transfer Time	8-10 seconds
Transfer Pressure	5-7KG

2.Component

Component	CAS No.	EC No.	Concentration (wt, %)
Poly(oxy-1,2ethanediyloxy carbonyl-1,4-phenylenec arbonyl)	25038-59-9	607-507-1	70 ~ 80
Polyurethane foams	9009-54-5	618-449-1	20 ~ 25
Silicon dioxide	7631-86-9	231-545-4	1 ~ 10

3.Application

3.1	<ul style="list-style-type: none">○ The transfer white coating ink for PET film has bright colors, superior quality, and is environmentally friendly and non-toxic. It has a simple manufacturing process and no need to vaporize the processing characteristics.
3.2	<ul style="list-style-type: none">○ The ink is highly applicable and versatile. The film can be used for clothing T-shirts, cut pieces, shirts, and other textiles for white digital inkjet printing, especially suitable for white ink thermal transfer, free engraving, free skeleton, free exclusion, white ink direct spray hot stamping process.

4.Advantages

4.1	<ul style="list-style-type: none">○ Leading R&D formula, good and stable tear off, can be tear at will, can be tear in seconds, hot tear, warm tear, cold tear, whatever you want!
4.2	<ul style="list-style-type: none">○ Best ink absorption, compatible with more different concentrations of white ink, to meet the needs of different customers.
4.3	<ul style="list-style-type: none">○ Bright colors, no static electricity, no sticking powder, no water edge, no oil return.

5.Process

5.1 Pre-processed pattern by Photoshop or others, then input into software of printer.

5.2 The printer needs to achieve the best match with the corresponding consumables such as PET film, ink, and ICC color management software to ensure that the printed pattern has stable and vibrant colors.

Printing humidity: 40%-70%.

Indoor temperature: 20-30°C.

Heating plate at the back of printer should be kept heated to a temperature of 38-45°C.

5.3 After printing the pattern, let the printed film with the pattern flow into the shaker.

In winter, front and back heating of the printer can be turned on to ensure stable quality

with recommended temperature of 40-45°C.

The heating plate in front of the oven machine is also recommended to be heated to 40-50°C before working.

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5.4 When shaking,

Shaking speed should match the printing speed.

And temp is best heated in a step-by-step manner with warming up first. then heating up in a general-purpose oven. The temp should be 70-90°C.

5.5 After baking, finished rewinding for the finished film with pattern, should be stamped as soon as possible through the stamping machine stamping on the surface of the substrate clothing and other materials.

The temp for heat pressing is usually set at 150-160°C.

The heat pressing time is around 8-10 seconds.

The heat pressing pressure is between 5-7KG.

It is best to match the specific fabrics accordingly.

5.6 Advises for heat pressing.

Fabrics	Pressing temp	Pressing time	Pressing pressure
Cotton	150-160°C	6-10s	5-7KG
Polyester	135-145°C	5-6s	6KG
Nylon	150-160°C	8-10s	5-7KG
Canvas bag	150°C	12-15s	6-7KG

Note: all fabrics should be at least 110 ° C high temperature resistance. Above parameters are just for reference, please make multiple tests on different fabrics.

6.How to choose double/single sided film

6.1 Double sided film (advised)

- If your printer with **3 heads and above**, it is recommended that choose the double-side film. Because printer prints fast, the double-side film does not slip easily and the print drop is more accurate.
- If you want to **store the print for a certain period** after it is finished before transferring it, it is recommended to choose double-side film.

6.2 Single sided film

- If your printer is **2 heads or less** and **the transfer is done on the same day after printing**, it is recommended to choose single-side film.

7.Classification and Notice of powder

80micron fine powder

Washed labels for fine text can be matched to fine powder

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120micron medium powder	General patterns are recommended to use medium powder
200micron coarse powder	Large patterns are recommended to use coarse powder

Powder should be sealed and stored, so as not to dampen the effect of shaking.

- Due to the different printers, inks, boards ICC curve of each user and the difference of substrate fabrics, you can make a perfect PET film according to own actual situation.
- If film surface is exposed for a long time to absorb moisture or dust should be ripped off the exposed section before printing, so as not to affect the judgment of the choice of powder.
- Hold the film rolls gently, avoid pressure and bruises, cut the winding film and pay attention to the strength and angle of the knife to avoid deep scratches.

8. Hazard and Protection

Classification	According to GHS system (9th revised edition), not classified as a hazardous chemical.
Inhalation	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye contact	This product may cause temporary discomfort following direct contact with the eye.

8.1 First-aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately

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Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.


Most important symptoms/effects, acute and delayed

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Symptoms may be delayed.

8.2 Personal protection

General requirement	
Eye contact	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand	In general situation, hand protection is not needed.
Respiratory	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.
Skin and body	In general situation, skin and body protection are not needed.

9. Firefighting

9.1 Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

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9.2 Specific hazards arising from the substance or mixture

- Development of hazardous combustion gases or vapor possible in the event of fire.
- May expand or decompose explosively when heated or involved in fire.

9.3 Special protective equipment and precautions for fire-fighters

- As in any fire, wear self-contained breathing apparatus(MSHA/NIOSH approved or equivalent) and full protective gear.
- Fight fire from a safe distance, with adequate cover.
- Prevent fire extinguishing water from contaminating surface water or the ground water system

10. Accidental release

10.1 Personal precautions, protective equipment and emergency procedures

- Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
- Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- Use personal protective equipment, do not breathe dust/fume.

10.2 Environmental precautions

- Prevent further leakage or spillage if safe to do so.

- Discharge into the environment must be avoided.

10.3 Methods and materials for containment and cleaning up

- Cut off the source of the leak as much as possible.
- Keep leaks in a ventilated place.
- Isolation of contaminated areas and restrictions on access.
- It is recommended that emergency personnel wear dust masks.
- Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.
- Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

11. Handling and Storage

11.1 Precautions for safe handling

- Handling is performed in a well ventilated place.
- Wear suitable protective equipment.
- Avoid contact with skin and eyes.
- Keep away from heat/sparks/open flames/ hot surfaces.

11.2 Conditions for safe storage, including any incompatibilities

- Keep containers tightly closed.
- Keep containers in a dry, cool and well-ventilated place.
- Keep away from heat/sparks/open flames/hot surfaces.
- Store away from incompatible materials and foodstuff containers.

12.Exposure Controls

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
		Poly(oxy-1,2-ethanediyloxy-carbonyl-1,4-phenylene-carbonyl)	Latvia	-	5
Silicon dioxide	South Korea	-	10	-	-
	New Zealand	-	1	-	-
	Ireland	-	6	-	-
	Germany (AGS)	-	4	-	-
	Denmark	-	2	-	4
	Australia	-	2	-	-

12.1 Monitoring methods

- EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- GBZ/T 300 series standard Determination of toxic substances in workplace air.

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12.2 Engineering controls

- Ensure adequate ventilation, especially in confined areas.
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Set up emergency exit and necessary risk-elimination area.

13. Physical State

Physical state	Translucent film
Color	Translucent film
Odor	No special odor
Odor threshold	No information available
pH	Not soluble in water, no pH value
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	No information available
Flash point(Closed cup, °C)	Not applicable
Evaporation rate	Not applicable
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit: No information available; Lower limit: No information available
Vapor pressure	Not applicable
Relative vapour density(Air = 1)	Not applicable
Relative density(Water=1)	No information available

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Solubility	No information available
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity	Not applicable
Particle characteristics	No information available

14. Stability and Reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	No information available.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Active metal, alcohols, aldehydes, carbon disulfide, carbon, sulfur, phosphorus, boron, reducing agents, metallic acetylenes and metallic carbonates.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

15. Toxicological information

PET

Skincorrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met

16. Ecological information

16.1 Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Silicon dioxide	No information available	EC50: > 5000mg/L (48h)(Crustaceans)	No information available

16.2 Chronic aquatic toxicity

Chronic aquatic toxicity | No information available

16.3 Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Silicon dioxide	Low	Low

16.4 Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Silicon dioxide	Low	Log Kow=0.5294

16.5 Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Silicon dioxide	Low	23.74

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16.6 Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Poly(oxy-1,2ethanediyloxy carbonyl-1,4-phenylenec arbonyl)	Insufficient information, temporarily unable to evaluate
Polyurethane foams	Insufficient information, temporarily unable to evaluate
Silicon dioxide	Not PBT/vPvB

17. Disposal Considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

18. Transport information

- IMO/IMDG: Not regulated

19. Regulatory information

International Chemical Inventory

Component	EC inventory	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Poly(oxy-1,2ethanediyloxy-carbonyl,4-phenylenecarbonyl)	×	✓	✓	✓	✓	✓	✓	✓	✓
Polyurethane foams	×	×	×	×	×	×	×	×	×
Silicon dioxide	✓	✓	✓	✓	✓	✓	✓	✓	✓

EC inventory European Inventory of Existing Commercial Chemical Substances

TSCA United States Toxic Substances Control Act Inventory A]

DSL Canadian Domestic Substances List

IECSC China Inventory of Existing Chemical Substances C]

NZIoC New Zealand Inventory of Chemicals C]

PICCS Philippines Inventory of Chemicals and Chemical Substances CS]

KECI Korea Existing Chemicals Inventory

AIIC Australian. Inventory of Industrial Chemical (AIIC)

ENCS Japan Inventory of Existing & New Chemical Substances

Note:

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"√" Indicates that the substance included in the regulations.

"x" No data or not included in the regulations.

20.Troubleshooting

Problem	Flowing ink
Reason	1.Ink flows easily where there are powdery impurities or crease marks. 2.Whether the heating plate heating is turned on after printing.
Solution	1.Reduce the ratio of white ink settings and appropriately reduce the amount of white ink. 2.Increase the printer heating plate temperature.
Problem	Some of the hot melt powder cannot be shaken off

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Reason	Humid weather, high humidity, high static electricity. If the edges of the pattern cannot be shaken off, please check: 1. Whether the environmental humidity is too high or the temperature is low.
	2. Is the shaker not strong enough. 3. Whether the drying glycerin spreads because the powder is not sprinkled for too long after printing. 4. Whether there is any ink spilled from the printhead.

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Solution	<p>1.If it is found that the pressure wheel bit shakes not clean or blank large area shake not clean, it should be the effect of static electricity or glue powder moisture or too fine, depending on the situation to take measures.</p> <p>2.It is recommended to increase the temperature of the rear heating plate and the heating plate of the oven machine's receiving position.</p>
Problem	Baking Powder Perforation
Reason	<p>High temperature baking for a short period of time causes the water and glycerin in the ink to boil and evaporate violently, which opens the pores of the coating and film.</p>

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Solution	1.It is best to medium powder and fine powder, coarse powder mixed with a small amount or even do not add, if the baking powder machine is excellent, can be divided into low-temperature section and high-temperature section of the baking, so that the best results. It can step by step both thoroughly vaporize the oil and water to melt
Problem	Return of oil or moisture
Reason	Oil or water flooding around the baked pattern or transferred pattern.

Solution

1.This is the phenomenon that the glue is not baked thoroughly when baking, and the water and glycerin in the glue without violent reaction. The baked film is flexible, elastic, smooth and dry.

2.If the baking machine is a little poor, to make good use of the function of the preheating plate in advance to heat, steam off some water to reduce the burden, first baked dry before shaking powder.

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	<p>ink cannot be thoroughly baked dry and back seep out.</p> <p>2. Generally, it is best to bake the single operating plate at a</p> <p>low temperature of about 120 degrees for a long time.</p> <p>Machine baking powder is limited by the length of the baking machine, you can bake powder machine in front of the receiving plate to increase the temperature appropriately, so that the water and glycerin evaporate in advance will also help.</p>
Problem	Stamping off powder
Reason	Sticky coating on the blank space around the pattern after transfer.

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Solution	<p>This phenomenon is due to stamping pressure is too high so that the film on the ink-absorbing layer damage peeling or fabric surface paste easy to stick coating caused.</p> <p>Generally as long as the temperature, pressing time to meet the requirements of the paste firmly, the pressure as far as possible downward adjustment, can be easily solved.</p>
Problem	Misalignment or slippage of the film.
Reason	<p>This is due to the imperfect design of the equipment stepping, which fails to fully satisfy the use of the single-mask function</p>

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Solution	<p>Slippage on the back of a single side interferes with the working condition of the device.</p> <p>Usually such devices can only be used with double size, and once the friction of a back-coated mat is applied, it immediately returns to normalization.</p>
Problem	Raise an edge
Reason	Too high temperature or too long stamping time
Solution	Reduce the stamping temperature or the stamping time.