

A Fluorinated Oil, Grease and Water Resistance Agent for Papers

SOT-374 is a New Fluorinated Oil and Grease Resistant Agent for Paper and Paperboard developed by Thrive.
A – 124 imparts Excellent Water Resistance Properties to Paper and Paperboard.

Physical Properties:

SOT-374 is Having Dozing of 0.8 to 1.3 %

Appearance	Pale Yellow to Brown Liquid
pH	3.0 to 4.0
Specific Gravity	20 °C: 1.1
Solid Content	20%
Ionic Charge	Cationic
Application	Covered Edible Oil & Grease

A-124 is Having Dozing of 1.5 to 1.8 %

Appearance	Milky Emulsion
pH	3.0 to 4.0
Specific Gravity	0.99 +/- 0.01
Solid Content	20% +/- 1%
Ionic Charge	Cationic
Application	Covered water

Features

- Paper and Paperboard processed with “SOT-374” shows Excellent Oil and Grease Resistance Properties. SOT-374 provides extended resistance to General Fats, Greases and Oil such as Corn, Soy, Mustard, Chicken Oil & also to be used in Bagasse Pulp.
- Paper and Paperboard processed with SOT-374 shows excellent Oil and Grease Resistance Properties against Oils from Fired or Baked Foods, such as French Fries, Fried Chicken and Pizza.
- SOT-374 can be applied to either an External Sizing Method (Size Press, Coating) or an Internal Sizing Method (Wet End).
- SOT-374 is Non-Flammable.
- SOT-374 does not contain Perfluorooctanoic Acid (PFOA), *Longer Chain Length perfluorocarboxylic Acids (PFCAs) or their Precursors (between the Detection Limit).
- SOT-374 is TSCA listed and FDA approved (depends on the usage).
- The company expects that SOT-374 will be German BfR approved in the near future.

Usage - SOT-374

- **External Sizing Method (Size Press, Coating):**

Standard Formula: Use a 2 to 8% Solution of SOT-374.

(It can be mixed with wetting and sizing agents to meet the application need)

Keep the pH of the solution slightly acid (less than pH 6.5)

Standard Drying Temperature: 100 to 130 °C (212 to 266 F)

- **Internal Sizing Method (Wet End):**

Usage: Add SOT-374 to the Pulp slurry after it is appropriately diluted with water.

Standard Formula: Use a 1.0 to 1.8% of SOT-374 based on Dry Pulp Weight. Keep the

pulp slurry pH at 4.5 to 6.5 for the best results (Depends on the Required Level of Oil & Grease Resistance)

If necessary, SOT-374 can be used in the combination with other agents such as a Paper Strengthening

Agent and a Fixing Agent Standard Drying Temperature: 100 to 130 °C (212 to 266 F)

Usage - A-124

- **External Sizing Method (Size Press, Coating):**

Standard Formula: Use a 3 to 6% Solution of A-124

(It can be mixed with wetting and sizing agents to meet the application need)

Keep the pH of the solution slightly acid (less than pH 6.5)

Standard Drying Temperature: 100 to 120 °C (212 to 286 F)

- **Internal Sizing Method (Wet End):**

Usage: Add A-124 to the Pulp slurry after it is appropriately diluted with water.

Standard Formula: Use a 1.8 to 2.5% of A-124 based on Dry Pulp Weight. Keep the

pulp slurry pH at 4.5 to 6.5 for the best results (Depends on the Required Level of Water Resistance)

If necessary, A-124 can be used in the combination with other agents such as a Paper Sizing

Agent and a Fixing Agent Standard Drying Temperature: 100 to 150 °C (212 to 286 F)

Precautions for Use

- Check the performance and the compatibility of the solution in advance when using A-124 in combination with other agents (For instance, a Paper Strengthening Agent and an Aluminum Sulfate).
- In case of mixing other agents into the solution, dilute each agents with water at least by 30 to 50%.
- Stir well the mixed solution before using.
- Keep the pH of the solution slightly acid (less than pH 6.5).
- The mixed solution must be used immediately after its mixing process.
- Sufficient heat-drying is needed to obtain the best performance.

Example of Use

External Sizing Method

(1) Size Press	1	2	3	4
SOT-374 (% in as Received)	1.5	3.0	4.5	6.0
Agent (Completely Saponified Type)	1.0	1.0	1.0	1.0
Total	100	100	100	100
Kit *1	6	6	8	8
Soy Oil *2 (60 °C X 2 H)	NP	NP	NP	NP
Soy Oil on the Creased Paper *3 (60 °C X 24 H)	NP	NP	NP	NP
Soy Oil on the Creased Paper *4 (120 °C X 24 H)	PP	PP	PP	PP
Sizing Degree	7 Sec	9 Sec	9 Sec	11 Sec
Processing Conditions	Test Base Paper		Bleached Kraft Paper, Bagasse Pulp, Basic Weight 40 g/m2	
	Processing Condition		Size Press Method Wet Pick Up 65%	
	Drying Condition		105 °C X 50 Sec (Cylinder Type Dryer)	

(2) Coating	1	2	3
SOT-374 (% in as received)	2.0	3.0	4.0
Agent (% in as received)	1.0	1.0	1.0
Total	100	100	100
Coating Amount (Solid g/m2)	0.08	0.12	0.16
Kit *1	6-7	6-7	7
Soy Oil *2 (60 °C X 2 H)	PP	NP	NP
Soy Oil *5 (60 °C X 24 H)	P	PP	NP
Soy Oil *6 (120 °C X 24 H)	P	PP	NP
Cobb 120	33	33	33
Processing Conditions	Test Base Paper		One-Side Coated White Cardboard, Bagasse Pulp Basic Weight 260 g/m2, Cobb 120 72
	Processing Condition		Coating Method
	Wet Application Quantity		20 g/m²
	Drying Condition		105 °C X 120 Sec (Hot Air Type Dryer)
	Agent		(Product from THRIVE CHEMTECH LLP)

(3) Wet End 1 2 3	1	2	3
SOT-374 (Solid %; based on the Dry Pulp)	0.5	0.75	1.0
Agent (Solid %; based on the Dry Pulp)	0.1	0.1	0.1
Kit *1	5	7	7-8
Soy Oil *2 (60 °C X 2 H)	NP	NP	NP
Soy Oil on the Creased Paper *3 (60 °C X 24 H)	NP	NP	NP
Soy Oil on the Creased Paper *4 (120 °C X 24 H)	PP	NP	NP
Sizing Degree	14 Sec	18 Sec	28 Sec
Processing Conditions	Basic Weight 50 g/m² , LBKP/NBKP = 7/3, Beating Degree (c.s.f.) 400ml		
	Drying Condition:		100 °C X 120 Sec (Hot Air Type Dryer)
	Agent (Product from THRIVE CHEMTECH LLP)		
	Pulp Slurry 3% – Churn for 3 Mins – SOT-374 – Churn for 3 Mins Papermaking – Press 0.5 mPa – Drying		

Evaluation Method

*1: Kit Method: We use the Dozing System to evaluate the chemicals.

*2: Oil Drop Method: Dropping the Test Oil (0.1ml) on the Test Paper, leave it at Temperature of 60 °C for 2 Hours. The degree of Oil Penetration through the Back Side is Visually Observable.

Criteria: NP: Does Not Penetrate through the Back Side.

PP: Partially Penetrates through the Back Side.

P: Penetrates through the Back Side.

*3: Oil Drop Method: The Test Paper is creased by a Rubber Roller (approx. 2 KG). Dropping the Test Oil (0.1 ml) on the Paper, and leave it at Temperature of 60 °C for 24 Hours. The degree of Oil Penetration through the Back Side is Visually Observable.

*4: Oil Drop Method: The method is the same as that of *3 except the Test Temperature is 120 °C.

*5: Oil Drop Method: The method is the same as that of *2 except the Exposure Time is 24 Hours, rather than 2 Hours.

*6: Oil Drop Method: The method is the same as that of *5 except the Test Temperature is 120 °C.

Precautions for Handling

- When handling, wear appropriate personal proactive equipment. Avoid contact with eyes, skin and clothing.
- Stir well before using.
- Store the product in an air-tight container at a temperature between 5 to 30 °C. Keep the containers out of the direct sunlight. Freezing or storing the product for a long period at a high temperature may result in deterioration of product quality.
- The product must be properly stored in its original sealed containers with its lid area cleaned. Otherwise, the performance of the product may deteriorate by contaminating the residues.
- The product color may change from pale yellow to brown over time, but it represents not quality problem.
- Do not breathe vapors or mist. Use only with adequate ventilation.
- The purpose of this technical brochure is to provide information that will be useful to consumer. It does not guarantee the product performance.
- Statements or suggestions regarding the use of these products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated.
- See Material Safety Data Sheet for further details regarding safe use of this product.