

# POWSIL™-60100

*Silicone water repellent*

## INTRODUCTION

POWSIL™-60100 is two components & non-fluorinated water repellent finishing agent.

## BENEFITS

- Provide excellent water repellence, virtually comparable with the best industry standard;
- Contains no PFOS (Perfluoro-octane sulfonic acid), PFOA (Perfluoro-octanoic acid), APEO (Alkyl phenol ethoxylate);
- Impart durable water-repellent effect on cotton fabrics even after multiple 30 home laundry cycles, typically outperforms industry standard;
- Impart superior smoothness and softness on all types of fabrics;
- The system is stable for 48 hours at bath pH 4 - 10, giving a long pot - life;
- It is readily applied, typical dry/cure conditions are applicable. Optimum performance is achieved by drying at 130°Cx2min followed by 160°Cx1-2min;
- Water dispersible, easy-to-use in any type of finishing process;
- Can be applied by both bath-padding & exhausting process;
- Can be combined with a typical fluorocarbon water-repellent to provide moderate oil/stain repellence.

## TYPICAL PHYSICAL PROPERTIES

Property	Part A	Part B
Appearance	Milky liquid	Beige liquid
Viscosity (25°C, cPs)	~ 50	~ 50
Solid content (wt%)	~ 32	~ 21
pH (25°C)	~ 9.5	~ 4.0
Dilutability	Dilute with cold water	Dilute with cold water
Ionic	Weak cationic	Weak cationic
Suitability for white good	Suitable	Suitable
Influence on dyed good shade	Virtually no influence	Virtually no influence
Influence on colorfastness	Virtually no influence	Virtually no influence
Bath solution Shearing stability	Good	Good
Bath Solution Thermal stability	~ 90 °C	~ 90 °C
Adaption to process	Bath-padding, exhausting & spraying	Bath-padding, exhausting & spraying
Bath pH Adaption	4.0 - 10.0	4.0 - 10.0
Stripping	yes	yes

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## APPLICATION

POWSIL™-60100 is two components non fluorine-based water repellent system. For effective results, it is essential to co-apply POWSIL™ 60100 Part A with POWSIL™-60100 Part B in the finishing bath. Extensive lab tests have demonstrated that this blend in the bath remains stable for up to 48 hours within a pH range of 4 - 10. The versatility of this blend allows it to be applied through various common methods, including padding, exhaustion, and spraying.

Dosage level:

Optimum dosage levels of POWSIL™-60100 Part A & Part B are based on the type of fabric and the level of performance required. 10~30 g/l of POWSIL™-60100 Part A blended with 3~9 g/l of POWSIL™-60100 Part B are generally recommended. The optimized ratio of POWSIL™ 60100 Part A & Part B is 10:3.

As a starting point, it is suggested to use 10g/l of POWSIL™-60100 Part A co-applied with 3g/l of POWSIL™-60100 Part B in a bath for thin fabric. For thick fabric, the recommended dosage is 20g/l of POWSIL™ 60100 Part A and 6g/l of POWSIL™-60100 Part B. However, these dosage levels can be adjusted to achieve the desired performance.

It is also important to rinse the fabric thoroughly before applying POWSIL™-60100 to remove all chemical residues.

### 1. Bath Solution pH for POWSIL™-60100

The bath solution pH 6-8 is typically recommended. The typical bath pH is 7.5. Bath pH can be adjusted by acetic acid or sodium hydroxide (10%).

### 2. Drying & Curing Conditions

There is no special requirements for the drying and curing conditions or equipment. The commonly used drying and curing conditions are mostly applicable for POWSIL™-60100. Optimum performance can be achieved by drying at 100~130°C for 2min followed by 150~170°C for 1min.

### 3. Combination with a Water-Repellent Fluorocarbon

A typical water-repellent fluorocarbon can be co-applied with POWSIL™-60100 in a finishing bath to enhance water repellence while also achieving moderate oil/stain

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repellence. It is recommended to conduct lab tests to determine the optimal conditions and bath ratios for this combination in order to achieve the desired performance.

The initial bath formulation for the combination can consist of 10 parts of POWSIL™-60100 Part A, 3 parts of POWSIL™-60100 Part B, and 3 parts of a typical water-repellent fluorocarbon (30% solid).

If necessary, pre-blending POWSIL™-60100 Part A with a typical water-repellent fluorocarbon (30% solid) can be a viable alternative. In such a scenario, the blend should be co-applied with POWSIL™-60100 Part B in the finishing bath.

For optimal results, it is advisable to utilize a water-repellent fluorocarbon (30% solid) which contains no extenders, such as paraffin wax emulsions or polyethylene wax emulsions. Prior to implementation, the compatibility of the blend should be assessed through lab testing to ensure smooth and problem-free operations.

## SAMPLE RECIPES

### 1. Exhausting process:

Bath solution (liquid ratio 1:10) → dipping fabric into bath solution (35°C, 40 min) → spinning → drying → overnight conditioning → Water repellency testing (AATCC-22).

#### Cotton knitted fabric:

2.0% (o.w.f.) for thin fabric

3.0% (o.w.f.) for thick fabric

### 2. Bath-padding process

Bath solution → Dried fabric → One dipping + one padding(3.0kg/cm<sup>2</sup>) → Heat setting (170 °C for 2 min) → Overnight conditioning → Water repellence evaluation (AATCC-22).

#### Cotton knitted fabric:

20g/l of POWSIL™-60100 Part A & 9g/l of POWSIL™-60100 Part B for thin knitted

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fabric

30g/l of POWSIL™-60100 Part A & 6g/l of POWSIL™-60100 Part B for thick fabric

### 3. Spraying

Bath solution → Spraying on fabric or garments → Drying & curing at 130-170 °C

20g/l of POWSIL™-60100 Part A & 9g/l of POWSIL™-60100 Part B for thin knitted fabric

30g/l of POWSIL™-60100 Part A & 6g/l of POWSIL™-60100 Part B for thick fabric

## WASHING DURABILITY

Results of 30 times washing cycles

Dosages & Washing Durability

Spraying rate	Part A	5(g/L)	10(g/L)	15(g/L)	20(g/L)	25(g/L)	30(g/L)
	Part B	1.5(g/L)	3.0(g/L)	4.5(g/L)	6.0(g/L)	7.5(g/L)	9.0(g/L)
Thin knitted cotton	Initial	75	75	75+	80+	90-	90
	30rd h	50-	60	70	80-	80+	80+
Thick knitted cotton	Initial	80+	85+	85+	85+	85+	85+
	30rd h	50	70	75	80	80+	80+

Drying at 130 °C for 2 min and then cueing at 160 °C for 1 min

Water repellency: AATCC-22

Home laundry: AATCC-135

## STRIPPING

To strip off the treated fabrics such as cotton, CVC, Nylon, PE, the following conditions are applied.

NaOH (30%): 7g/l

Stripping agent: 7g/l

Liquid Ration: 1:7-10

100 °C for 40 min

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## PACKING AND STORAGE

POWSIL™-60100 is supplied in 50Kg plastic drum.

In the unopened original container POWSIL™-60100 has a shelf life of twelve months in a dry and cool place.

## NOTES

All information in the leaflet is based on our present knowledge and experience. We reserve the right to make any changes according to technological progress or further developments. Performance of the product described herein should be verified by testing.

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Please send all technical questions concerning quality and product safety to: [support@SiSiB.com](mailto:support@SiSiB.com).