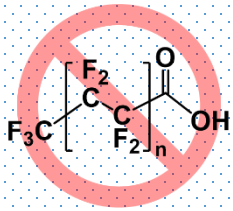
BONRON™ XAS Series

Acrylic Barrier Coatings for Oil Proof Paper

Oct. 2026
[N-AE-26-003]
ver.14.3

1) Key Requirements for PFAS Alternatives

- Per and Polyfluoroalkyl Substances (PFAS) are adversely affected the health and body.
- Water-based acrylic emulsion without fluorine compounds.
- Compliant with the Food Contact Material Regulations and can be used for packaging materials for direct food contact. *1~*4
- Excellent oil resistance after bending is expected.



Florine-free









2) Regulatory information of BONRON™ XAS-199-2 for food contact

Japanese Positive List (PL) for Direct Food Contact	○ Listed*1
FDA 21 CFR, §175.300, §176.170, §176.180	○ Listed*2
Regulation(EU) No.10/2011	○ Listed*3
BfR Recommendation XIV, XXXVI	○ Listed*3

*1. Paragraph 3, Article 18 of the Revised Food Sanitation Act. Cabinet Office Notification No. 128 of 2024 (published on December 25, 2024)
*2. In order to determine "compliance" under the laws and regulations, the final product may need to be carried through a specification test according to the intended use.
The product contains substances with restricted use. Please contact our sales representative for details.
*3. The product contains substances with restricted use (SML) and substances with restricted use. Please contact our sales representative for details.

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3) Basic physical and chemical properties*4



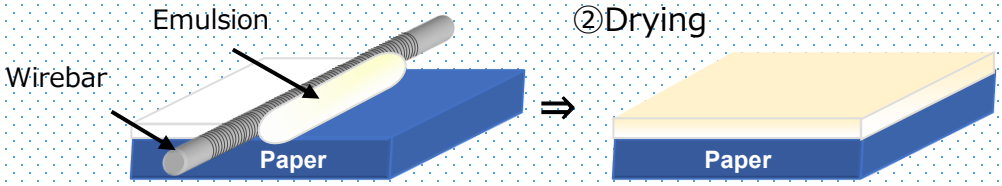
Appearance

	BONRON™ XAS-199-2
Appearance	Yellowish brown
Solid content (%)	41.0 – 45.0
pH(-)	7.0 – 9.0
Viscosity(mPa･s)	50 – 800

*4 Values in the table are not standard values. Specifications may change because this product is under development.

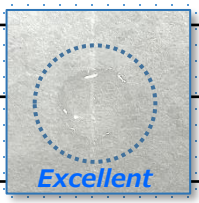
4) Performance of the paper coating*5

Coating procedure



BONRON was coated on the rough surface of Kraft paper using wire bar coater.

		BONRON™ XAS-Series	Commercial packaging paper
Coating amount (g/m²)		5-6 1 pass coat	5-6
Air permeability (s/100ml)		> 50,000	> 50,000
KIT	Flat	>8	> 9
	Bend	>8	0
Cobb (g/m²)	300 s	4	10
	1800 s	11	No data
Heat Sealability		○ sealable	○ sealable





*5 Base conditions, Bonron was coated on the rough surface of Kraft paper (70 g/m²),
Drying Condition: 120 ℃ 1min, Humidity control: 23°C 60% RH for at least 5 hours
Heat seal condition, coated and uncoated surfaces at 140℃ and 0.2 MPa for 1 s.

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5) Wrapping test for BONRON™ XAS

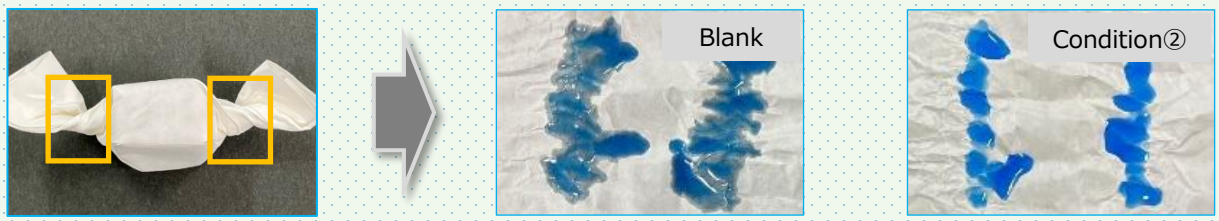
■ Oil and water barrier evaluation *6

Conditions	①	②	③
Base Paper	35gsm	60gsm	
Coated grade	BONRON XAS Series	BONRON XAS Series	BONRON XAS Series +CHEMIPEARL W410*7
KIT value (Flat / Vending)	11 / 11	12 / 12	11 / 11
Cobb 300 (gsm)	4.8	4.4	4.4

*6 Base conditions Samples were coated on the rough surface of paper, Coating amount: 6gsm, Drying Condition: 120 ℃ 30sec, Humidity control: 23°C 60% RH for at least 5 hrs.

*7 Added 2 wt % as dry to avoid blocking.

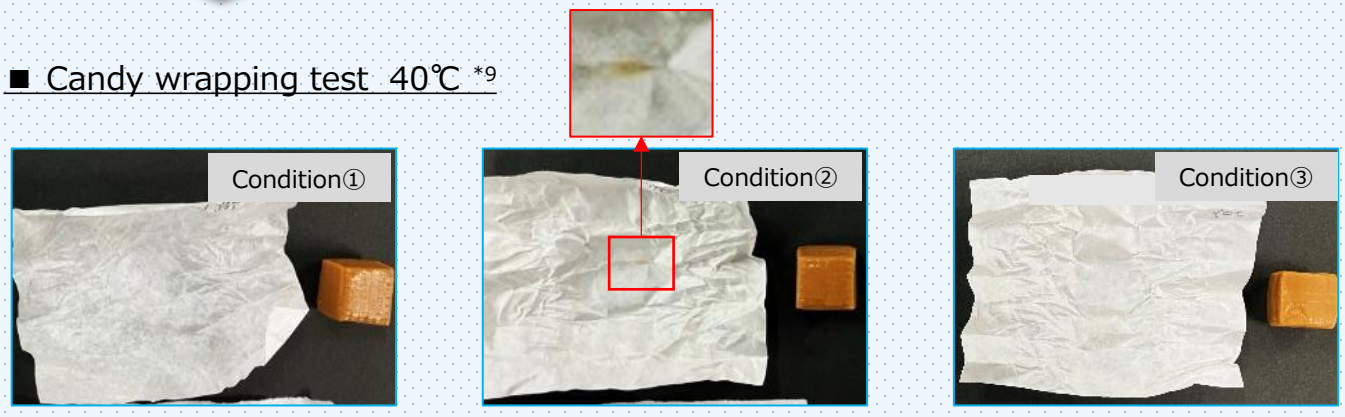
■ Oil resistance evaluation at twist part



Blue colored vegetable oil was dropped on the twist part(Yellow line circled area) after candy wrapping test 40℃.

- Oil soaking was observed in brank
- No oil soaking was observed in Condition②.

■ Candy wrapping test 40℃ *9



*9 Morinaga Milk Caramel was chosen because it is a greasy and sticky candy. Twisted by hand and left after 24 hrs. at 40℃

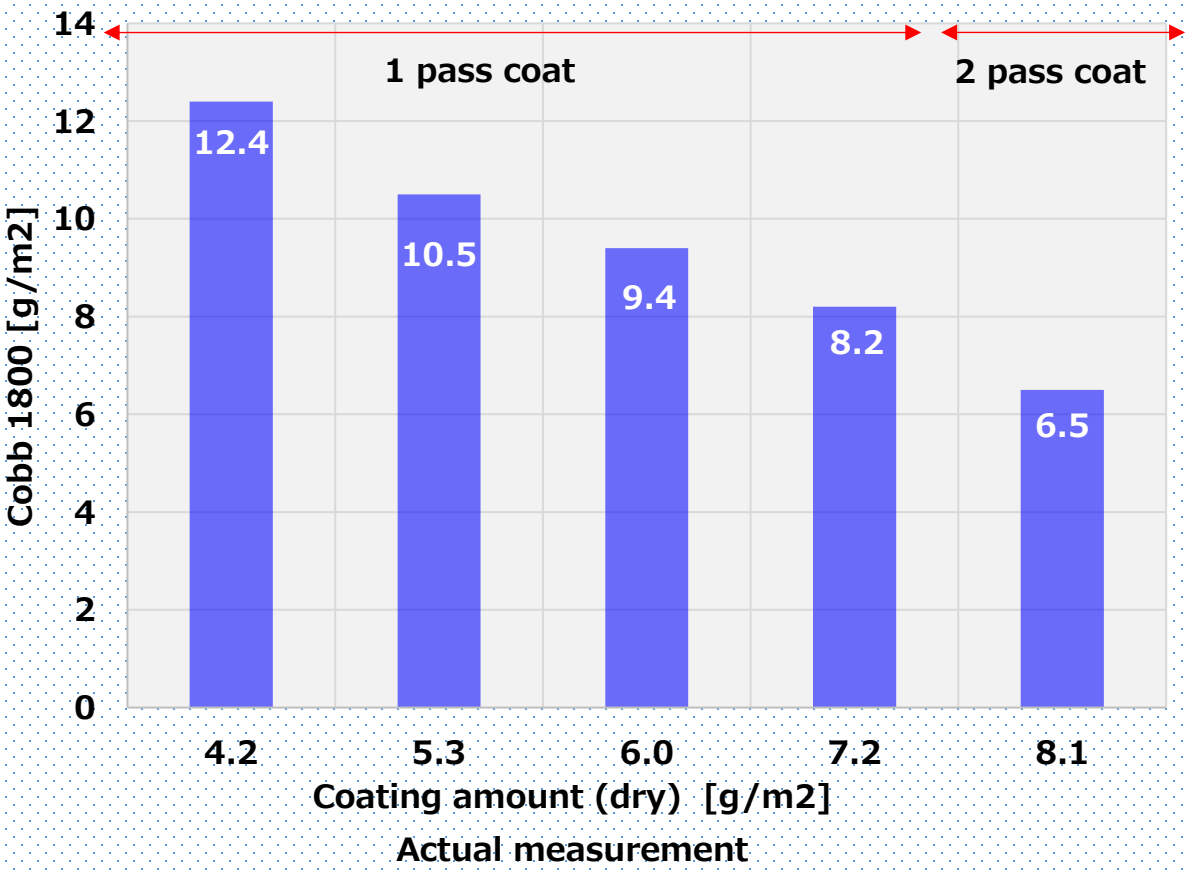
- No oil soaking was observed in all conditions.
- Slight caramel transfer to paper occurred (Condition①,②).
- Condition③ comes off more easily than without CHEMIPEARL (Condition①,②).

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6) Coating amount dependence of COBB1800*9

・The COBB1800 value was improved by increasing the coating amount or the coating times.

・The mechanism is that nanoscale coating defects decrease as the coating amount increases, resulting in improved water resistance (i.e., a lower COBB value).



Actual measurement

*9 Experimental conditions for coating and conditioning: BONRON XAS Series was applied to the rough surface of Kraft paper (70 g/m²). The samples were dried at 120 °C for 30 seconds and subsequently conditioned at 23 °C and 60% relative humidity for at least 5 hours prior to COBB1800 testing.

7) Defoamer formulation*10

Foam could be suppressed by adding a defoamer like TEGO Foamex 1488.

	Weight / Wet (g)
BONRON™ XAS-199-2 (43 % Solid Content)	1000
Pure water	163
TEGO Foamex 1488*12	< 0.4
Total	1163

*10 Formulation should be stirred for more than 1 hour by a disperser.
*11 Evonik Industries

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