

Customer details: Dart Container Corporation
500 Hogsback Road
Mason
MI 48854
USA

SATRA reference: CHM0241001/1550/
DRWM/A

Your reference:

Date of report: 5th February 2016

Samples received: 7th December 2015

For the attention of: Liz Kirkendall

Date(s) work carried out: 9th December 2015 –
4th February 2016

TECHNICAL REPORT

Subject:

Overall and specific migration limit testing on samples described as Braskem 6021N in accordance with BS EN 1186:2002 and Commission Regulation No. 10/2011.

Conditions of Issue:

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Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only.

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The uncertainty of the results (UoM) in this report is based on a standard uncertainty multiplied by a coverage factor $k=2$, which provides for a confidence level of approximately 95%.

Report signed by: David Merrell
Position: Senior Team Leader
Department: Chemical & Analytical Technology

WORK REQUESTED:

Polypropylene cups described as Braskem 6021N were received on the 7th December 2015 for assessment in accordance with the overall migration limit and specific migration limit requirements of Commission Regulation No. 10/2011.

The specific migration limit testing for propylene oxide was carried out by an external laboratory, and reported under their reference AC/REP/138188/5.

CONCLUSIONS:

When tested in accordance with BS EN 1186-9: 2002 the samples described as Braskem 6021N were found to meet with the overall migration limit requirements when assessed against 3% Acetic acid, 20% Ethanol and 50% Ethanol for 10 days at 40 °C.

The specific migration limits for propylene oxide were assessed after extraction in 3% Acetic acid, 20% Ethanol and 50% Ethanol for 10 days at 40°C and were found to meet with the requirements in Commission Regulation (EU) No 10/2011, Annex II.

The specific migration limits for metals were assessed after extraction in 3% Acetic acid for 10 days at 40°C and were found to meet with the requirements in Commission Regulation (EU) No 10/2011, Annex II.

Results are given in the following tables.

TESTING REQUIRED:

- BS EN 1186 part 9: 2002 Materials and articles in contact with foodstuffs – Plastics Test methods for overall migration into aqueous food simulants by article filling for 10 days at 40°C.
 - 3% Acetic Acid (simulant B in Commission Regulation No. 10/2011)
 - 20% Ethanol (simulant C in Commission Regulation No. 10/2011)
 - 50% Ethanol (simulant D1 in Commission Regulation No. 10/2011)
- #TES-AC-812; In-house method, detection by GC/Q/ToF Mass spectrometry (Performed by an external laboratory)
 - 3% Acetic Acid (simulant B in Commission Regulation No. 10/2011)
 - 20% Ethanol (simulant C in Commission Regulation No. 10/2011)
 - 50% Ethanol (simulant D1 in Commission Regulation No. 10/2011)
- #SATRA SOP CAT-015 – Migration of metal elements (Ba, Co, Cu, Fe, Li, Mn, Zn) into food simulants. Quantification by ICP- OES.

RESULTS AND REQUIREMENTS:

Migration into aqueous food simulants by article filling

Sample	Test Method	Global migration (mg/dm ²)		Mean Global migration (mg/dm ²)	Pass/Fail
		A	B		
Braskem 6021N	BS EN 1186-9 (3% Acetic acid)	A	1.1	1.5	Pass
		B	1.7		
		C	1.7		
Braskem 6021N	BS EN 1186-9 (20% ethanol)	A	1.6	1.0	Pass
		B	1.3		
		C	< 1		
Braskem 6021N	BS EN 1186-9 (50% ethanol)	A	2.2	2.0	Pass
		B	1.9		
		C	2.0		
Requirement	-	-		<10 mg/dm²	-

≠Specific migration of propylene oxide into aqueous food simulants

Sample	Simulant	Specific migration (mg/kg)		Mean migration (mg/kg)	Propylene oxide migration limit (mg/kg)	Pass/Fail
Braskem 6021N	3% Acetic acid	A	<0.01	<0.01	< 0.01	Pass
		B	<0.01			
		C	<0.01			
	20% Ethanol	A	<0.01	<0.01	< 0.01	Pass
		B	<0.01			
		C	<0.01			
	50% Ethanol	A	<0.01	<0.01	< 0.01	Pass
		B	<0.01			
		C	<0.01			

Testing was carried out by an external laboratory

#SATRA SOP CAT-015 – Migration of metal elements (Ba, Co, Cu, Fe, Li, Mn, Zn) into food simulants. Quantification by ICP- OES.

Sample tested	Simulant	Element (mg/kg of foodstuffs)						
		Ba	Co	Cu	Fe	Li	Mn	Zn
Braskem 6021N	3% Acetic acid	<0.1	<0.05	<0.05	<0.1	<0.1	<0.1	< 1.0
Requirement of the Commission Regulation (EU) No 10/2011, Annex II		1	0.05	5	48	0.6	0.6	25

APPENDICES:

The polypropylene cups described as Braskem 6021N are suitable for contact with the following food categories of foodstuffs as listed in 10/2011 Annex III, table 2.

Reference number	Description of foodstuffs
01	Beverages
01.01	Non-alcoholic beverages or alcoholic beverages of an alcoholic strength lower than or equal to 6% vol: <ul style="list-style-type: none"> A. Clear drinks: water, ciders, clear fruit or vegetable juices of normal strength or concentrated, fruit nectars, lemonades, syrups, bitters, infusions, coffee, tea, beers, soft drinks, energy drinks and the like, flavoured water, liquid coffee extract B. Cloudy drinks: juices and nectars and soft drinks containing fruit pulp, musts containing fruit pulp, liquid chocolate
01.02	Alcoholic beverages of an alcoholic strength of between 6% vol and 20%.
01.03	Alcoholic beverages of an alcoholic strength above 20% and all cream liquors
03	Chocolate, sugar and products thereof confectionery products
03.02	B. In paste form: <ul style="list-style-type: none"> II. Moist
04	Fruit, vegetables and products thereof
04.01	Whole fruit fresh or chilled, unpeeled
04.02	Processed fruit: <ul style="list-style-type: none"> B. Fruit in the form of puree, preserves, pastes or in its own juice or in sugar syrup (jams, compote, and similar products) C. Fruit preserved in a liquid medium: <ul style="list-style-type: none"> II. In an alcoholic medium
04.04	Whole vegetables, fresh or chilled
04.05	Processed vegetables: <ul style="list-style-type: none"> C. Vegetables in the form of puree, preserves, pastes or in its own juice (including pickled and in brine) D. Preserved vegetables: <ul style="list-style-type: none"> II. In an alcoholic medium

06	Animal products and eggs
06.01	B. Preserved fish: II. In an aqueous medium
06.02	Crustaceans and molluscs (including oysters, mussels, snails): A. Fresh within the shell B. Shell removed, processed, preserved or cooked with the shell II. In an aqueous medium
06.04	Preserved meat: B. In an aqueous medium
06.05	Whole eggs, egg yolk, egg white B. Liquid and cooked
07	Milk products
07.01	Milk A. Milk and milk based drinks whole, partly dried and skimmed or partly skimmed
07.02	Fermented milk such as yoghurt, buttermilk and similar products
07.03	Cream and sour cream
07.04	Cheeses: C. Processed cheese (soft cheese, cottage cheese and similar) D. Preserved cheese: II. In an aqueous medium (feta, mozzarella and similar)
08	Miscellaneous Products
08.01	Vinegar
08.03	Preparations for soups, broths, sauces, in liquid, solid or powder form (extracts, concentrates); homogenised composite food preparations, prepared dishes including yeast and raising agents: B. Any other form than powdered or dried: II. Other
08.04	Sauces: A. With aqueous character
08.07	Ice creams
08.10	Concentrated extracts of an alcoholic strength equal to or exceeding 6% vol.



Polypropylene cups described as Braskem 6021N

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Issue Date: 1st October 2009