JBF – PET FILMS

Overview of Specialty Films

Sustainable Range

PCR PET Films

- JBF has PCR films available with PCR content from 25% till 90%.
- These films are available in grades like Clear, Matte, White, Metallised etc. & in thickness from 48 ga till 10 mil .
- These films are Certified with ISO14021:2016 .

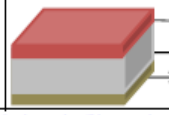
JBF

Technical Data Sheet

ARYAFILM -P410

ARYAFILM

ARYAFILM P410 is one- side corona treated polyester film produced with 90% Post consumer recycle content, this film is suitable for metalizing, printing & lamination and has good wettability & excellent machinability.



Different Surface Treatment as per customer requirement is possible & The Product code will be as under

Surface Treatment	Plain / Plain	Plain / Chemical	Plain / Acrylic	Corona / Chemical	Corona /Acrylic
Product Code	P400	P420	P431	P413	P412

Sr. No.	Properties		Unit	Test Method	Typical Values				
	General								
1	Thickness		Micron	JBF Method	12	15	23	36	50
			Gauge		48.0	60	92	144	200
2	Yield		M^2/Kg	JBF Method	59.52	47.62	31.06	19.84	14.29
3	Density		gm/cc	ASTM D 1505	1.396				
	Mechanical								
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	2100	2000	2000	1900
			(Kpsi)		29.9	29.9	28.4	28.4	27.0
2	Elongation at break	MD	%	ASTM D 882	130	130	130	130	140
		TD			120	120	120	120	130
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.50	0.50	0.50	0.45
		Dynamic			0.45	0.45	0.45	0.45	0.40
	Thermal								
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.8	1.8	1.6	1.6
		TD			0.4	0.4	0.4	0.4	0.4
2	Melting Point		^0C	DSC	252	252	252	252	252
	Optical								
1	Haze		%	ASTM D 1003	3.5	3.5	4.0	6.0	7.0
2	Transmittance		%	ASTM D 1003	88.0	88.0	88.0	88.0	88.0
	Surface treatment level								
1	Corona Side		Dyne/cm	ASTM D 2578	54	54	54	54	56
2	Plain side		Dyne/cm	ASTM D 2578	44	44	44	44	44
3	Chemical side		Dyne/cm	ASTM D 2578	54	54	54	54	54
4	Acrylic side		Dyne/cm	ASTM D 2578	40	40	40	40	40
	Barrier								
1	W.V.T.R. (38°C & 90% RH)		$gm/m^2/day$	ASTM F 1249	40	35	22	15	10
			$gm/100in^2/day$		2.58	2.26	1.42	0.97	0.65
2	O.T.R. (23°C & 0%RH)		$cc/m^2/day$	ASTM D 3985	100	90	70	50	40
			$cc/100in^2/day$		6.45	5.81	4.52	3.23	2.58

MD = Machine Direction, TD = Transverse Direction

S & A Certifications

Certificate of Registration & Approval Awarded to

JBF Bahrain S.P.C.

BAHRAIN INTERNATIONAL INVESTMENT PARK (BIIP), BUILDING 461, ROAD 1508, BLOCK 115, AL HIDD, SALMAN INDUSTRIAL CITY, P.O. BOX 50397, KINGDOM OF BAHRAIN.

The Environment Labels Declarations – Self declared Environmental claims (Type II Environmental labeling) has been assessed successfully and found to comply with the requirements of the International Standard.

ISO 14021:2016.

Scope of Certification

Manufacture and Supply of Biaxially Oriented Polyester Film & its Metallization with maximum 90% of Post Consumer Recycled PET

By using Post Consumer Recycled PET achieved reduction in CO2 Emissions by 60 %

Certificate Number : S & A Certifications 01/10/ ELD / 20-21

Certification Audit Date : 08/10/2020

Issue Date : 10/10/2020

2nd Surveillance Audit: September 2021 Expiry Date : 20/10/2022

(Scope Revised & New Certificate Issued for Balance Validity of the Original Certificate Issued on 21/10/2019)

S & A Euro Cert.

Mr. Shrinivas Joshi

(Authorised Signatory) S & A Certifications

Global Corporate Office :- Woody House 212-224 Ferries Avenue, London, UK.

The Validity & the Traceability of the Certificate can be verified on the website www.sandacertifications.com

HS PET FILMS

HS PET films are available in thickness 48 ga till 200 ga with Seal strength range from 400 gms to 1400 gms.

These films can be used to make Mono-material Laminate in 2 and 3 ply structures.

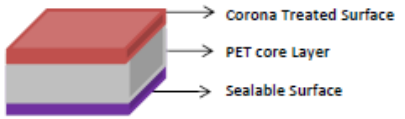
- Currently films are available in 2 variants

Normal Seal Strength – A500 / A510

High Seal Strength - A550 / A551

Technical Data Sheet
ARYAFILM - A551

ARYAFILM A551 is co extruded one side heat sealable film with high sealing strength & Other side corona treated polyester film, Heat sealable layer is designed to heat seal to itself or APET, PVC etc suitable for flexible packaging



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	36	35.28	36.72
			Gauge		144	141.12	146.88
2	Yield		M^2/Kg	JBF Method	19.84	19.45	20.25
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2000	1800	2200
			(Kpsi)		28.4	25.6	31.3
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
4	Heat Seal Strength		gm/25mm	JBF Method	1200	1000	1400
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.6	1.0	2.2
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D 1003	6.5	4.5	8.0
2	Transmittance		%	ASTM D 1003	88	85	91
	Surface treatment level						
1	Corona Treated side		Dynes/cm	ASTM D 2578	54	52	56
2	Sealable side		Dynes/cm	ASTM D 2578	46	44	48

Antimony free

Why Antimony used in BOPET FILM

The BOPET film manufactured from PET chips, during the polymerization of PET chips commonly antimony is used as a catalyst (antimony acetate or antimony trioxide). However, the toxicity of antimony compounds can cause adverse effects on human health and environment if the SML is more than 40ppb.

In recent years, some new requirements have been put forward in the world on the use of antimony free.

Advantages of Antimony free polyester film

- The permissible migration of Antimony in foodstuff 0.04 mg/kg as per EU regulation 10/2011, because of the low acceptance limit of antimony migration some of the customers prefer to use antimony free film . The specific migration testing antimony is essential for conventional PET films, especially for food packaging where in PET is heated along with the food.
- No need for antimony migration testing of packaging or food
- The PET film is antimony free; hence, no Antimony can transfer to food items.
- Contribution to protect the environment

- **Features of Antimony ARYAFILM**
- Available in thickness from 10 to 250 micron.
- No need to test the film SML of antimony in food simulants.
- The antimony cannot transferred in the food.
- A valuable contribution to environment
- Excellent mechanical properties (Like tensile strength) to meet the high tension required in printing / coating process.
- 6) Excellent weather resistance.
- 7) One side corona treatment, different type of chemical coated as per customer requirements
- **Application of Antimony Free film**
- Lidding film for dairy product (Isotropic film)
- Direct contact lids
- Flexible Packaging (mostly food packaging in hot condition)
- Cooking and roasting bag
- Peel able sealable films for food tray sealing .
- **Antimony Free ARYAFILM product**
- S410 – One side corona treated film
- S420 – One side chemical coated film
- S431- One side acrylic coated film
- S499- Isotropic film for lidding application (Corona and chemical coated as per customer requirement)

Clean & Clear Range

Largest Clean Room for 8.5 mtrs wide PET Film

Video Link https://youtu.be/uIu5EfehQ-I

JBF Bahrain has most advance and widest clean room for PET film. This line can produce 8.5 mtr wide film rolls in thickness from 32 ga till 200 ga.

Super Clear Films

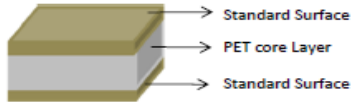
Super Clear thin films produced in clean room environment are suitable for special flexible packaging, Electronics , Pharma packaging which require dust free films. These films meet high standards of clean room processing like Window Film or Electronic product manufacturing.

A100 series clean room films are available from 40 ga onwards.

Technical Data Sheet
ARYAFILM - A100

ARYAFILM

ARYAFILM A100 is Both side Plain super clear Polyester film specially for reprographics, packaging, labels, photosensitive coating applications.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
Thermal							
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		^{0}C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	0.8	0.5	1.1
2	Transmittance		%	ASTM D 1003	90	87	93
Surface treatment level							
1	Both side		Dynes/cm	ASTM D 2578	44	42	46
Barrier							
1	W.V.T.R. (38°C & 90% RH)		$gm/m^2/day$	ASTM F 1249	40	30	50
			$gm/100in^2/day$		2.58	1.94	3.23
2	O.T.R. (23°C & 0%RH)		$cc/m^2/day$	ASTM D 3985	100	80	120
			$cc/100in^2/day$		6.45	5.16	7.74

High Performance Range

Isotropic Film

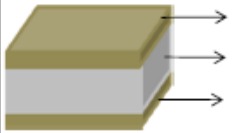
Isotropic films are suitable for lidding application for dairy products like – Yogurt cups and ice-cream lids.

Isotropic PET film has desirable features such as superior thermal stability, crack resistance, gloss and medium barrier.

A499 grade film is available in thickness from 48 ga till 200 ga.

Technical Data Sheet
ARYAFILM - A499

ARYAFILM A499 is bi-axially oriented isotropic transparent polyester film ,this film is Suitable for lidding application for dairy products. (Coating or corona as per requirement)



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
Thermal							
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		^0C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	3.5	2.5	4.5
2	Transmittance		%	ASTM D 1003	88	85	91
Surface treatment level							
1	Both side		Dynes/cm	ASTM D 2578	44	42	46

MD = Machine Direction, TD = Transverse Direction

High Dyne Film – 70 Dyne

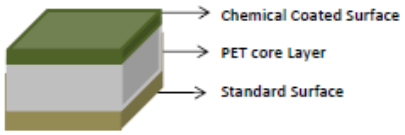
A403 High Dyne Films are suitable for various industrial applications like TCA coating or Abrasive coatings.

High Dyne saves time and cost as there is no need of additional coating or priming which is done during TCA or abrasive coating process.

Film is available in various thickness from 48 ga till 10 mil.

Technical Data Sheet
ARYAFILM - A403

ARYAFILM A403 is One side Chemical coated transparent polyester film , this film is suitable for PU resins/inks



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	150	147	153
			Gauge		600	588	612
2	Yield		M^2/Kg	JBF Method	4.76	4.67	4.86
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	1800	1600	2000
			(Kpsi)		25.6	22.8	28.4
2	Elongation at break	MD	%	ASTM D 882	150	110	190
		TD			140	100	180
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.40	0.30	0.50
		Dynamic			0.35	0.25	0.45
Thermal							
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.2	0.8	1.6
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	14.0	12.0	16.0
2	Transmittance		%	ASTM D 1003	88	85	91
Surface treatment level							
1	Chemical Coated Side		Dynes/cm	ASTM D 2578	70	68	72
2	Plain Side		Dynes/cm	ASTM D 2578	44	42	46

MD = Machine Direction, TD = Transverse Direction

DIRECT EMBOSSABLE

A503 is Direct Embossable film and is suitable for Holographic application.

Film is available in various thickness from 48 ga onwards.

Available in PET A503 and Met PET AM503 variants.

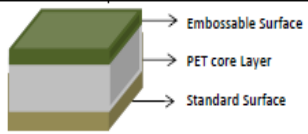
Zoom in (Ctrl+Plus)

JBF

Technical Data Sheet
ARYAFILM - A503

ARYAFILM

ARYAFILM A503 is co-extruded transparent polyester film having one side direct embossable layer,this film is suitable for direct embossing without any offline coating and providing deep & sharp impression.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
Thermal							
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	3.5	2.5	4.5
2	Transmittance		%	ASTM D 1003	88	85	91
Surface treatment level							
1	Embossable side		Dynes/cm	ASTM D 2578	40	38	42
2	Plain side		Dynes/cm	ASTM D 2578	44	42	46

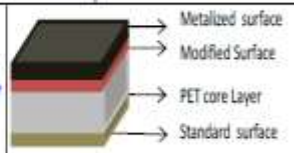
MD = Machine Direction, TD = Transverse Direction

JBF

Technical Data Sheet
ARYAFILM AM503

ARYAFILM

ARYAFILM AM503 is Metalized on modified surface & other side plain film , this film is suitable for holography through hard embossing.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	23.00	22.54	23.46
			Gauge		92.00	90.16	93.84
2	Yield		M^2/Kg	JBF Method	31.06	30.45	31.69
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	1800	1600	2000
			(Kpsi)		25.6	22.8	28.4
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	--	ASTM D 1894	0.60	0.50	0.70
		Dynamic			0.55	0.45	0.65
Thermal							
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
Optical Density							
1	Optical Density		--	JBF Method	2.0		

Hot Stamping Foil

A206, is very popular and fast moving PET film grade and is suitable for Hot Stamping Foil application.

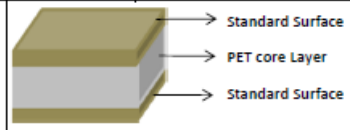
Film has very good optical property and very good shrinkage .

Currently approved at many large customers globally.

It is possible to produce rolls of 2550mm or 100” wide.

Technical Data Sheet
ARYAFILM - A206

ARYAFILM A206 is optically clear Polyester film suitable for Hot Stamping Foil application.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.45	0.35	0.55
		Dynamic			0.40	0.30	0.50
Thermal							
1	Shrinkage @ 190^0 C/20’	MD	%	ASTM D 1204	3.2	2.6	3.8
		TD			-0.2	-0.6	0.2
2	Melting Point		^{0}C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	2.0	1.5	2.5
2	Transmittance		%	ASTM D 1003	89	86	92
Surface treatment level							
1	Both side		Dynes/cm	ASTM D 2578	44	42	46
Barrier							
1	W.V.T.R. (38°C & 90% RH)		gm/m^2/day	ASTM F 1249	40	30	50
			gm/100in^2/day		2.58	1.94	3.23
2	O.T.R. (23°C & 0%RH)		cc/m^2/day	ASTM D 3985	100	80	120
			cc/100in^2/day		6.45	5.16	7.74

High Friction Film

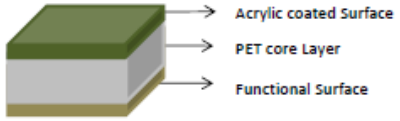
A438, High Friction PET films are used for making PET food, Fertilisers etc. heavy bags which are stacked in retail stores.

A438 has excellent property of high friction which helps in high stacking and avoid slippage resulting in product damage or accidents in retail outlets.

These films are available in thickness of 48 ga and above.

Technical Data Sheet
ARYAFILM - A438

ARYAFILM A438 is one side high coefficient of friction other side acrylic coated polyester film.this film is suitable for printing, lamination, and big bulk packaging.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	1.00	0.80	Block
		Dynamic			1.00	0.80	Block
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		^{0}C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D 1003	3.5	2.5	4.5
2	Transmittance		%	ASTM D 1003	88	85	91
	Surface treatment level						
1	Acrylic coated side		Dyne/cm	ASTM D 2578	40	38	42
2	Functional side		Dyne/cm	ASTM D 2578	44	42	46

Balance Shrinkage -Thermal Lamination Base

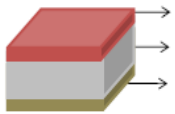
A450/A451 are films with balance shrinkage and used for making Thermal Lamination films.

These films are available with corona and plain treatment options from 40 ga till 10 mil.

Thermal lamination films made are finally used in book lamination, map and match etc. applications.

Technical Data Sheet
ARYAFILM - A451

ARYAFILM A451 is one side corona treated Polyester film , this film is suitable for thermal lamination due to its controlled thermal properties in transverse direction.

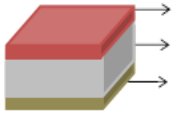


Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	10	9.7	10.3
			Gauge		40	38.8	41.2
2	Yield		M^2/Kg	JBF Method	71.43	69.35	73.64
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	120	80	160
		TD			110	70	150
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
	Thermal						
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	2.0	1.4	2.6
		TD			2.0	1.4	2.6
2	Melting Point		°C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D 1003	3.0	2.0	4.0
2	Transmittance		%	ASTM D 1003	88	85	91
	Surface treatment level						
1	Corona Treated side		Dynes/cm	ASTM D 2578	54	52	56
2	Plain Side		Dynes/cm	ASTM D 2578	44	42	46
	Barrier						
1	W.V.T.R. (38°C & 90% RH)		gm/m²/day	ASTM F 1249	50	40	60
			gm/100in²/day		3.23	2.58	3.87
2	O.T.R. (23°C & 0%RH)		cc/m²/day	ASTM D 3985	110	90	130
			cc/100in²/day		7.10	5.81	8.39

MD = Machine Direction, TD = Transverse Direction

Technical Data Sheet
ARYAFILM - A451

ARYAFILM A451 is one side corona treated Polyester film , this film is suitable for thermal lamination due to its controlled thermal properties in transverse direction.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
	Thermal						
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	2.0	1.4	2.6
		TD			1.8	1.2	2.4
2	Melting Point		°C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D 1003	3.5	2.5	4.5
2	Transmittance		%	ASTM D 1003	88	85	91
	Surface treatment level						
1	Corona Treated side		Dynes/cm	ASTM D 2578	54	52	56
2	Plain Side		Dynes/cm	ASTM D 2578	44	42	46
	Barrier						
1	W.V.T.R. (38°C & 90% RH)		gm/m²/day	ASTM F 1249	40	30	50
			gm/100in²/day		2.58	1.94	3.23
2	O.T.R. (23°C & 0%RH)		cc/m²/day	ASTM D 3985	100	80	120
			cc/100in²/day		6.45	5.16	7.74

MD = Machine Direction, TD = Transverse Direction

Foldable Range

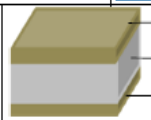
Dead Fold – Plain PET & Met PET

A443 – Clear PET and AM443 Clear Met PET are suitable for various packaging applications which require dead fold property like Candy wrapping, Gift wrapping etc.

Available with Corona ,Anti-Static etc treatment options in thickness 72 ga , 80 ga , 92 ga. Other thickness also possible.

JBF — Technical Data Sheet — ARYAFILM - A443 — ARYAFILM

ARYAFILM A443 is both side plain fold retainable polyester film, this film is suitable for candy wrapping application.

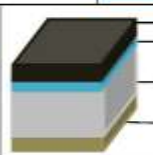


Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	23	22.54	23.46
			Gauge		92	90.16	93.84
2	Yield		M^2/Kg	JBF Method	31.06	30.45	31.69
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2200	2000	2400
			(Kpsi)		31.3	28.4	34.1
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.50	0.40	0.60
		Dynamic			0.45	0.35	0.55
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	30.0	25.0	35.0
		TD			35.0	30.0	40.0
2	Melting Point		°C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D 1003	4.0	3.0	5.0
2	Transmittance		%	ASTM D 1003	88	85	91
	Surface treatment level						
1	Both side		Dynes/cm	ASTM D 2578	44	42	46
	Barrier						
1	W.V.T.R. (38°C & 90% RH)		gm/m²/day	ASTM F 1249	22	17	27
			gm/100in²/day		1.42	1.10	1.74
2	O.T.R. (23°C & 0%RH)		cc/m²/day	ASTM D 3985	70	60	80
			cc/100in²/day		4.52	3.87	5.16

MD = Machine Direction, TD = Transverse Direction

JBF — Technical Data Sheet — ARYAFILM AM443 — ARYAFILM

ARYAFILM AM443 is fold retainable Metalized on plain polyester film suitable for candy wrapping applications, especially for excellent gloss & barrier properties



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	23.00	22.54	23.46
			Gauge		92.00	90.16	93.84
2	Yield		M^2/Kg	JBF Method	31.06	30.45	31.69
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2200	2000	2400
			(Kpsi)		31.3	28.4	34.1
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	--	ASTM D 1894	0.60	0.50	0.70
		Dynamic			0.55	0.45	0.65
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	30.0	25.0	35.0
		TD			35.0	30.0	40.0
2	Melting Point		°C	DSC	252	250	255
	Surface treatment level						
1	Standard surface		Dynes/cm	ASTM D 2578	44	42	46

Optical Density (JBF Method)			M.V.T.R. (ASTM F 1249) gm/m2/day (38°C 90%RH)			O.T.R. (ASTM D 3985) cc/m2/day (23°C 0 %RH)		
Target	Minimum	Maximu	Target	Minimum	Maximum	Target	Minimum	Maximum
2.2	2.0	2.4	0.9	0.7	1.1	1.0	0.8	1.2
2.5	2.3	2.7	0.7	0.5	0.9	0.8	0.6	1.0
2.8	2.6	3.0	0.5	0.3	0.7	0.6	0.4	0.8
3.0	2.8	3.2	0.3	0.1	0.5	0.4	0.2	0.6

Dead Fold - White & Met White

A643 – White PET and AM643 White Met PET are suitable for various packaging applications which require dead fold property like Candy wrapping, Gift wrapping etc.

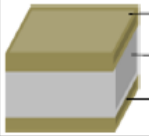
Available with Corona ,Anti-Static etc treatment options in thickness 72 ga , 80 ga , 92 ga. Other thickness also possible.

JBF

Technical Data Sheet
ARYAFILM - A643

ARYAFILM

ARYAFILM A643 is milky White fold retainable polyester film ,this film is suitable for candy wrapping application.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	23	22.54	23.46
			Gauge		92	90.16	93.84
2	Yield		M^2/Kg	JBF Method	31.06	30.45	31.69
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2200	2000	2400
			(Kpsi)		31.3	28.4	34.1
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.45	0.35	0.55
		Dynamic			0.40	0.30	0.50
Thermal							
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	30.0	25.0	35.0
		TD			35.0	30.0	40.0
2	Melting Point		°C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	95.0	90.0	100.0
2	Transmittance		%	ASTM D 1003	45	40	50
Surface treatment level							
1	Both side		Dynes/cm	ASTM D 2578	44	42	46

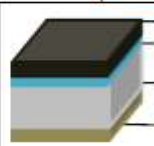
MD = Machine Direction, TD = Transverse Direction

JBF

Technical Data Sheet
ARYAFILM AM643

ARYAFILM

ARYAFILM AM643 is Metalized on plain side other side plain milky white fold retainable polyester film. This film is suitable for candy wrapping applications, especially for excellent gloss & barrier properties.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	23.00	22.54	23.46
			Gauge		92.00	90.16	93.84
2	Yield		M^2/Kg	JBF Method	30.19	29.60	30.81
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2200	2000	2400
			(Kpsi)		31.3	28.4	34.1
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	--	ASTM D 1894	0.60	0.50	0.70
		Dynamic			0.55	0.45	0.65
Thermal							
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	30.0	25.0	35.0
		TD			35.0	30.0	40.0
2	Melting Point		°C	DSC	252	250	255
Surface treatment level							
1	Standard Surface		Dynes/cm	ASTM D 2578	44	42	46

Optical Density (JBF Method)			M.V.T.R. (ASTM F 1249) gm/m2/day (38°C 90%RH)			O.T.R. (ASTM D 3985) cc/m2/day (23°C 0 %RH)		
Target	Minimum	Maximu	Target	Minimum	Maximum	Target	Minimum	Maximum
2.2	2.0	2.4	0.9	0.7	1.1	1.0	0.8	1.2
2.5	2.3	2.7	0.7	0.5	0.9	0.8	0.6	1.0
2.8	2.6	3.0	0.5	0.3	0.7	0.6	0.4	0.8
3.0	2.8	3.2	0.3	0.1	0.5	0.4	0.2	0.6

MD = Machine Direction, TD = Transverse Direction

Attraction Range

Matte Films

A490/A491 are regular matte PET films that are used for flexible packaging , Label facestock and liners and Industrial applications.

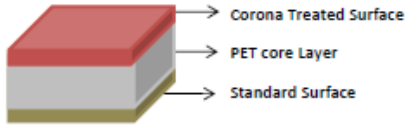
These films are available with different treatment like corona, chemical or Acrylic etc. to suit intended applications.

Thickness available are from 48 ga onwards.

These films are also available in Metallised types AM490 , AM491 etc.

Technical Data Sheet
ARYAFILM - A491

ARYAFILM A491 is one side side corona treated matte polyester film , this film is suitable for label & flexible packaging applications



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2000	1800	2200
			(Kpsi)		28.4	25.6	31.3
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.40	0.30	0.50
		Dynamic			0.35	0.25	0.45
Thermal							
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	47.0	42.0	52.0
2	Transmittance		%	ASTM D 1003	87	84	91
4	Gloss (60°)			ASTM D 2457	50	46	54
Surface treatment level							
1	Corona Treated side		Dynes/cm	ASTM D 2578	54	52	56
2	Plain Side		Dynes/cm	ASTM D 2578	44	42	46

Super Matte or High Matte

A390/A391 are regular matte PET films that are used for flexible packaging ,

Label face stock and liners and Industrial applications.

These films are available with different treatment like corona, chemical or Acrylic etc. to suit intended applications.

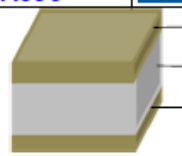
Thickness available are from 200 ga onwards.

Key features are very low gloss and high haze.

Also available are metallised Matte.

Technical Data Sheet
ARYAFILM - A390

ARYAFILM A390 is both side plain Super Matte film , this film is suitable for label & flexible packaging applications



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	75	73.5	76.5
			Gauge		300	294	306
2	Yield		M^2/Kg	JBF Method	9.52	9.34	9.72
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	1800	1600	2000
			(Kpsi)		25.6	22.8	28.4
2	Elongation at break	MD	%	ASTM D 882	140	100	180
		TD			130	90	170
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.35	0.25	0.45
		Dynamic			0.30	0.20	0.40
Thermal							
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.4	1.0	1.8
		TD			0.4	0.0	0.8
2	Melting Point		^0C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	92.0	87.0	98.0
2	Transmittance		%	ASTM D 1003	70	65	75
4	Gloss (60°)			ASTM D 2457	23	18	28
Surface treatment level							
1	Both side		Dynes/cm	ASTM D 2578	44	42	46

White & Met White Film

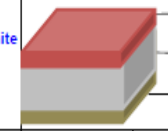
A610 – White PET and AM610 White Met PET are suitable for various Flexible packaging applications which require white background, need light barrier etc.

Available with Corona , various Chemical treatment options in thickness from 48 ga till 10 mil .

JBF — Technical Data Sheet — ARYAFILM

ARYAFILM - A610

ARYAFILM A610 is one side corona treated Milky White polyester film ,this film is suitable for Flexible packaging Application.



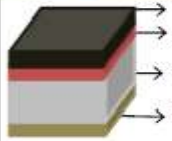
Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.45	0.35	0.55
		Dynamic			0.40	0.30	0.50
	Thermal						
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D 1003	95.0	90.0	100.0
2	Transmittance		%	ASTM D 1003	50	45	55
	Surface treatment level						
1	Corona Treated side		Dynes/cm	ASTM D 2578	54	52	56
2	Plain Side		Dynes/cm	ASTM D 2578	44	42	46
	Electrical						
1	Break Down Voltage		KV	ASTM D 149	3.5	3	4

MD = Machine Direction, TD = Transverse Direction

JBF — Technical Data Sheet — ARYAFILM

ARYAFILM AM610

ARYAFILM AM610 is Metalized on corona treated side other side plain milky white polyester film.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	12.00	11.64	12.36
			Gauge		48.00	46.56	49.44
2	Yield		M^2/Kg	JBF Method	57.87	56.18	59.66
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	--	ASTM D 1894	0.60	0.50	0.70
		Dynamic			0.55	0.45	0.65
4	Metal Bond Strength		gm/25 mm	TP-105-92	250	200	300
	Thermal						
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	2.0	1.6	2.6
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
	Surface treatment level						
1	Standard Surface		Dynes/cm	ASTM D 2578	44	42	46

Barrier								
Optical Density (JBF Method)			M.V.T.R. (ASTM F 1249) gm/m2/day (38°C 90%RH)			O.T.R. (ASTM D 3985) cc/m2/day (23°C 0 %RH)		
Target	Minimum	Maximum	Target	Minimum	Maximum	Target	Minimum	Maximum
2.2	2.0	2.4	0.9	0.7	1.1	1.0	0.8	1.2
2.5	2.3	2.7	0.7	0.5	0.9	0.8	0.6	1.0
2.8	2.6	3.0	0.5	0.3	0.7	0.6	0.4	0.8

High Barrier Range

High OD Met PET Upto 4.00 OD

AM451, High OD Met PET films are suitable for replacement of Alu Foils

as these films provide ultra high barriers.

Comparison of other properties for METPET and Aluminum foil

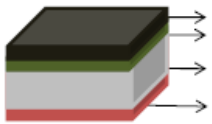
Sr. No	Properties	Al Foil (9 Micron)	Met PET (12 mic.)
01	Yield (M2/kg)	41.0	59.52
02	Cost	Expansive	Cheaper
03	Pin holes	100 nos/m2	0.01 nos/m2
04	Contamination	High , Due to oil used during annealing of foil	No any contamination
05	M/c Performance	Low speed running	High speed running
06	Flex crack resistance	Poor	High
07	puncture resistance	Poor	High

JBF

Technical Data Sheet
ARYAFILM AM451

ARYAFILM

ARYAFILM AM451 is metalized on modified co-polymer Coated surface other side corona treated side polyster film , promoting very high bond strength. this film is suitable for flexible packaging applications where in it is required to resist Sterilization in hot water or steam



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron	JBF Method	12.00	11.64	12.36
			Gauge		48.00	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	--	ASTM D 1894	0.60	0.50	0.70
		Dynamic			0.55	0.45	0.65
4	Metal Bond Strength		gm/25 mm	TP-105-92	800	700	900
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	2.0	1.4	2.6
		TD			0.4	0.0	0.8
	Surface treatment level						
1	Corona Treated surface		Dynes/cm	ASTM D 2578	52	50	54

Barrier								
Optical Density			M.V.T.R. (ASTM F 1249)			O.T.R. (ASTM D 3985)		
(JBF Method)			gm/m2/day (38°C 90%RH)			cc/m2/day (23°C 0 %RH)		
Target	Minimum	Maximum	Target	Minimum	Maximum	Target	Minimum	Maximum
2.2	2.0	2.4	0.9	0.7	1.1	1.0	0.8	1.2
2.5	2.3	2.7	0.7	0.5	0.9	0.8	0.6	1.0
2.8	2.6	3.0	0.5	0.3	0.7	0.6	0.4	0.8
3.0	2.8	3.2	0.3	0.1	0.5	0.4	0.2	0.6
4.0	3.8	4.2	0.2	0.1	0.3	0.3	0.1	0.4

ALOX – Transparent High Barrier Film

ALOX- Transparent High Barrier films are available in types for Retort and Non-retort high

barrier applications.

Latest technology equipment for production and testing, makes it possible to produce Top coated high barrier ALOX films for flexible packaging and industrial applications.

Current Non Retort product are

AX410- ALOX film with out top coating

AQ410- ALOX film (Top Coated) for PVDC film replacement

AC410 – ALOX film (Top Coated) for high Barrier

Current Retort range is

AS410 – ALOX film (Top Coated) for high Barrier

Non ALOX - Transparent High Barrier Film

AP410 is Top Coated High Barrier film suitable for packing of Dry Fruits and trail mix snacks.

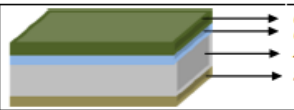
Has excellent transparent barrier which is currently available in 48 ga .

Other thickness can be made against customer requirements.

Technical Data Sheet
ARYAFILM – AP410
(Provisional)

ARYAFILM

ARYAFILM AP410 Top coated on corona side other side plain Polyester film. The PET film surface is coated to provide a clear, high Oxygen barrier, printable for flexible packaging (dry fruits) applications.



Sr.No.	Properties		Unit	Test Method	Nominal value	Minimum	Maximum
			General				
1	Thickness		Micron (Gauge)	JBF Method	12 (48)	11.64 (46.56)	12.36 (49.44)
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
			Mechanical				
1	Tensile Strength at break MD / TD	MD	Kg/cm^2 (Kpsi)	ASTM D 882	2100 (29.9)	1900 (27.0)	2300 (32.7)
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction	Static	--	ASTM D 1894	0.45	0.35	0.55
		Dynamic			0.40	0.30	0.50
			Thermal				
1	Shrinkage @150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.80
2	Melting Point		^{0}C	DSC	252	250	255
			Optical Properties				
1	Haze (Max)		%	ASTM D 1003	3.0	2.5	3.5
			Surface Treatment level				
1.	Surface Tension (coated side)		Dyne/cm	ASTM D 2578	56	54	58
2.	Surface Tension (plain side)				44	42	46
			Barrier Properties				
1	M.V. T.R 38^{0}C 90%RH		gm/m^2/day gm/100in^2/day	ASTM F 1249	≤ 40 ≤ 2.58		
2	O.T.R 23^{0}C/0 %RH		cc/m^2/day cc/100in^2/day	ASTM D 3985	≤ 0.8 ≤ 0.05		
			Physical				
1	Roll Length		Meter	JBF Method	≤12000		
2	Width		mm	JBF Method	-0, +3		
3	Splice		--	JBF Method	Max. 10% roll with one splice		

Digital Range

Digital Printable Film

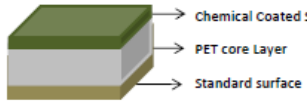
A426, is Certified with Triple Star by RTI, USA and HP for use in digital printing application.

Film has best properties for use in high speed digital printing.

Available in 48 ga and higher thickness.

Technical Data Sheet
ARYAFILM - A426

ARYAFILM A426 is one side chemical coated Polyester film . This film is certified for HP Indigo digital press(es) ws6000,ws6600,ws6800,ws4050/4500,ws4000 & ws4600 .



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
General							
1	Thickness		Micron	JBF Method	12	11.64	12.36
			Gauge		48	46.56	49.44
2	Yield		M^2/Kg	JBF Method	59.52	57.79	61.36
3	Density		gm/cc	ASTM D 1505	1.395		
4	Service Temp		°C	JBF Method	-70 to 150		
Mechanical							
1	Tensile Strength at break	MD/TD	Kg/cm^2	ASTM D 882	2100	1900	2300
			(Kpsi)		29.9	27.0	32.7
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction (One side to Other side)	Static	--	ASTM D 1894	0.45	0.35	0.55
		Dynamic			0.40	0.30	0.50
Thermal							
1	Shrinkage @ 150° C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		°C	DSC	252	250	255
Optical							
1	Haze		%	ASTM D 1003	3.5	2.5	4.5
2	Transmittance		%	ASTM D 1003	88	85	91
Surface treatment level							
1	Standard surface		Dynes/cm	ASTM D 2578	44	42	46
2	Chemical Coated side		Dynes/cm	ASTM D 2578	40	38	42
Barrier							
1	W.V.T.R. (38°C & 90% RH)		gm/m²/day	ASTM F 1249	40	30	50
			gm/100in²/day		2.58	1.94	3.23
2	O.T.R. (23°C & 0%RH)		cc/m²/day	ASTM D 3985	100	80	120
			cc/100in²/day		6.45	5.16	7.74

MD = Machine Direction, TD = Transverse Direction

Labels & Packaging Substrate Evaluation Report

Certified for HP Indigo

Supplier Information	
Supplier Name	JBF RAK LLC
Supplier Address	AL JAZEERAH AL HAMRAH, RAS AL KHAIMAH, RAS AL KHAIMAH, 6574
	United Arab Emirates

Product Information	
Substrate Name	POLYESTER FILM GRADE A426
Substrate Type	PET
Substrate Category	Flexible Packaging
White/Transparent/other, please specify	Transparent/Translucent
Thickness/Weight	12 um/0.5 mils

Certification Number	RI4050-17-5147
Certification Center	RIT
Date of Evaluation	07/20/2017
Evaluated on	HP ws4050
Certified for	ws4050/4500, ws4000 & ws4600
Evaluation Process	Screen

Evaluation	Measurement	Result	Grade (stars)	Comments
Runability	substrate webhandling on press.	Pass	★★★	
Scalability	frame to frame registration.	Pass		
Ink Adhesion / Fixing	Peeling 100% ink coverage patch (CMYK) at 15 and 60 minutes. Only 100% test patch.	100%	★★★	
	Peeling 400% ink coverage patch (CMYK) at 15 and 60 minutes. Only 400% test patch.	95%		
	For transparent substrates: Peeling 400% ink coverage patch CMYK(200%) + 2xW@100% at 15 and 60 minutes. Only 400% test patch.	100%		
Cleaner Pages	# of pages required	1		

TR&DR Film

AD223 , is an excellent film for Tracing and Drafting application.

Film is commercially approved and in use by a large buyer.

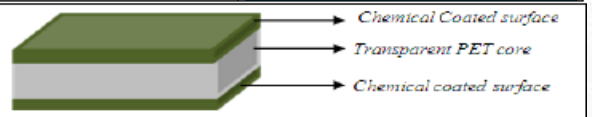
Smooth finish and best tracing and drafting properties both by manual and digital process methods.

JBF

Technical Data Sheet
ARYAPET – AD223
(Provisional)

ARYAFILM

ARYA PET AD223 Both side coated film suitable for tracing & Drafting application



Sr.No	Properties		Unit	Test Method	Typical Values		
	General						
1	Base film Thickness		Micron (Gauge)	JBF METHOD	50 (200)	75 (300)	100 (400)
2	Coating GSM(Both Side)		g/m2	JBF METHOD	7	7	7
	Mechanical						
1	Co-efficent of friction (one side to other side)	Static	--	ASTM D 1894	0.35	0.35	0.35
		Dynamic			0.30	0.30	0.30
	Thermal						
1	Shrinkage @150°c/30'	MD	%	ASTM D 1204	1.6	1.4	1.4
		TD			0.4	0.4	0.4
2	Melting Point		°C	DSC	255		
	Drafting properties						
1	Ink Take	Rotaring Pen	–	JBF METHOD	0.5	0.5	0.5
		Ghosting			Fair	Fair	Fair
		Burnishing			ok	ok	Ok
		Scratch			ok	ok	Ok
2	Pencil Test	2H ,3H,4H	–	JBF METHOD	Good	Good	Good
		Pencil Erasion			No Ghosting No Burnishing		
	Chemical properties						
1	Chemical Resistance	Water	–	JBF METHOD	Excellent		
		Ethyl Acetate			Excellent		
		MEK			Excellent		
	Coating Adhesion Test						
1	Coating Adhesion Test		–	JBF METHOD	Pass		

MD =Machine Direction, TD =Transverse Direction

Tactile Range

Soft Touch Matte

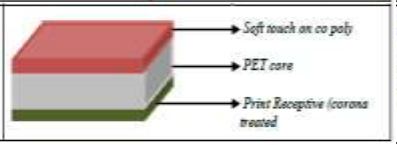
AW431 grade matte film in 52 and 96 ga given a soft feel on touch which is generally not seen in PET films.

Films are printable and used for making pet food bags or specialty packaging which requires velvet touch feel.

These films also have property of High Friction which is required for PET food or Lawn bags.

Technical Data Sheet
ARYAPET – AW431

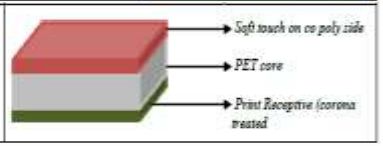
ARYA SOFT TOUCH – AW431 Soft touch coated on co poly other side corona treated film. Soft touch layer designed to provide tangible, velvet feels with matte finish.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron (Gauge)	JBF Method	13 (52)	12.61 (50.44)	13.39 (53.56)
2	Yield		M^2/Kg	JBF Method	54.94	53.35	56.64
3	Density		gm/cc	ASTM D 1505	1.395		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2 (Kpsi)	ASTM D 882	2100 (29.8)	1900 (27.0)	2300 (32.7)
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	–	ASTM D 1894	0.65	0.55	0.75
		Dynamic			0.60	0.50	0.70
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	2.0	1.4	2.6
		TD			0.4	0.0	0.8
2	Melting Point		^0C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D1003	78	73	82
2	Light transmittance		%	ASTM D1003	86	81	91
3	Gloss@ 60^0		–	ASTM D 2457	9	7	11
	Coating adhesion						
1	Solvent Based ink printability		–	JBF Method	Pass		
2	UV ink adhesion		–	JBF Method	Pass		

Technical Data Sheet
ARYAPET – AW431

ARYA SOFT TOUCH – AW431 Soft touch coated on co poly other side corona treated film. Soft touch layer designed to provide tangible, velvet feels with matte finish.



Sr. No.	Properties		Unit	Test Method	Target	Minimum	Maximum
	General						
1	Thickness		Micron (Gauge)	JBF Method	24 (96)	23.52 (94.08)	24.48 (97.92)
2	Yield		M^2/Kg	JBF Method	29.76	29.17	30.36
3	Density		gm/cc	ASTM D 1505	1.395		
	Mechanical						
1	Tensile Strength at break	MD/TD	Kg/cm^2 (Kpsi)	ASTM D 882	2000 (28.4)	1800 (25.5)	2200 (31.2)
2	Elongation at break	MD	%	ASTM D 882	130	90	170
		TD			120	80	160
3	Co-efficient of friction One side to Other side	Static	–	ASTM D 1894	0.90	0.80	1.0
		Dynamic			0.70	0.60	.80
	Thermal						
1	Shrinkage @ 150^0 C/30'	MD	%	ASTM D 1204	1.8	1.2	2.4
		TD			0.4	0.0	0.8
2	Melting Point		^0C	DSC	252	250	255
	Optical						
1	Haze		%	ASTM D1003	78	73	82
2	Light transmittance		%	ASTM D1003	86	81	91
3	Gloss@ 60^0		–	ASTM D 2457	9	7	11
	Coating adhesion						
1	Solvent Based ink printability		–	JBF Method	Pass		
2	UV ink adhesion		–	JBF Method	Pass		

Peelable Range

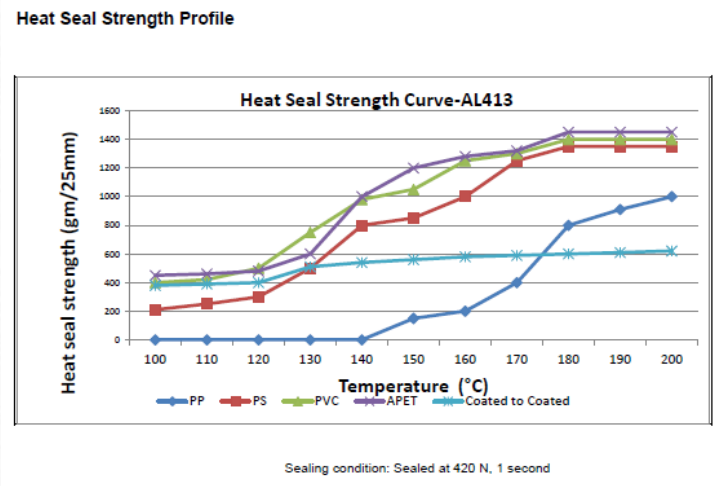
Sealable Peelable – Clear

AL413 is one side Heat Sealable Peelable films available in different thickness from 84 ga to 208 ga.

Special Property:- Has excellent clarity and printability.

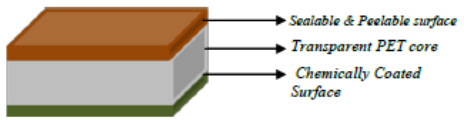
Seal & Peel Substrate :- This film can seal to APET, CPET, PETG, PVC, HDPE, PS & PP.

Food Type Recommended:- Non Oily & Oily Food items.



JBF **Technical Data Sheet**
ARYAFILM – AL413
ARYAFILM

ARYAPEEL AL413- One side Heat sealable & peelable, other side Chemically Coated Polyester film suitable for lidding applications. Heat sealable layer is designed to provide peelable Seal with APET, CPET, PETG, PVC, PS, PP & Itself. It is recommended for Non oily and Oily food items.



Sr.No.	Properties		Unit	Test Method	Typical Values				
				General					
1	Thickness		Micron (Gauge)	JBF Method	21 (84)	25 (100)	30 (120)	38 (152)	52 (208)
2	Yield		M^2/Kg	JBF Method	34.01	28.5	23.80	18.79	13.73
				Mechanical					
1	Tensile Strength at break	MD	Kg/cm² (Kpsi)	ASTM D 882	2100 (29.8)	2000 (28.4)	2000 (28.4)	2000 (28.4)	1900 (27.0)
		TD			2200 (31.2)	2100 (29.8)	2100 (29.8)	2100 (29.8)	2000 (28.4)
2	Elongation at break	MD	%	ASTM D 882	130	130	130	130	130
		TD			120	120	120	120	120
3	Co-efficient of friction	Static	--	ASTM D 1894	0.80	0.80	0.80	0.80	0.80
		Dynamic			0.60	0.60	0.60	0.60	0.60
4	Heat Seal Strength 180°C,1S & 420 N	PP	gm /25mm	JBF Method	800	800	800	800	800
		PS			1100	1100	1100	1100	1100
		APET			1100	1100	1100	1100	1100
		PVC			1100	1100	1100	1100	1100
		Seal to Seal			600	600	600	600	600
				Optical					
1	Haze		%	ASTM D 1003	9	9	9	9	9
				Thermal					
1	Shrinkage @150° C/30'	MD	%	ASTM D 1204	2.0	2.0	2.0	2.0	1.6
		TD			0.4	0.4	0.4	0.4	0.4

Sealable Peelable – Anti-Fog

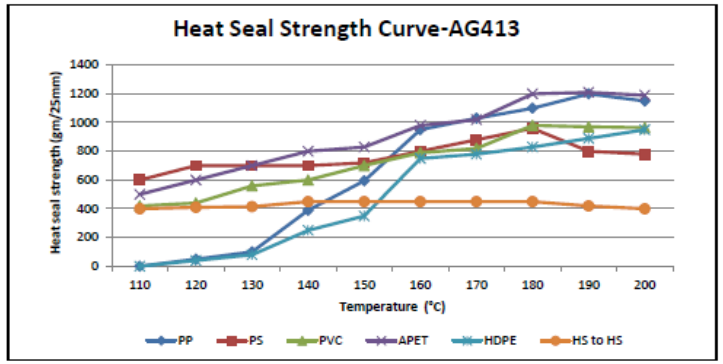
AG413 is one side Anti-Fog coated Sealable Peelable films available in different thickness from 56 ga to 208 ga.

Special Property:- Has excellent Anti-Fog properties for both Hot or cold food packing application.

Seal & Peel Substrate :- This film can seal to APET, CPET, PETG, PVC, HDPE, & PS.

Food Type Recommended:- Non Oily Food items.

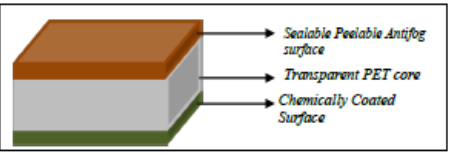
Heat Seal Strength Profile



Sealing condition: Sealed at 420 N, 1 second.

JBF **Technical Data Sheet**
ARYAPEEL –AG413
ARYAFILM

ARYAPEEL AG413 - One side Heat sealable Peelable with Antifog property other side Chemically Coated Polyester film suitable for lidding applications. Heat sealable layer designed to give Seal & Peel with PP, APET, CPET, PETG, PVC, HDPE & PS. It is recommended for Non oily food items.



Sr.No.	Properties		Unit	Test Method	Typical Values			
	General							
1	Thickness		Micron (Gauge)	JBF Method	14 (56)	21 (84)	25 (100)	38 (144)
2	Yield		M^2/Kg	JBF Method	51.02	34.01	28.5	18.79
	Mechanical							
1	Tensile Strength at break	MD	Kg/cm^2 (Kpsi)	ASTM D 882	2100 (29.8)	2000 (28.4)	2000 (28.4)	2000 (28.4)
		TD			2200 (31.2)	2100 (29.8)	2100 (29.8)	2100 (29.8)
2	Elongation at break	MD	%	ASTM D 882	130	130	130	130
		TD			120	120	120	120
3	Co-efficient of friction	Static	--	ASTM D 1894	0.90	0.90	0.90	0.90
		Dynamic			0.80	0.80	0.80	0.80
4	Heat Seal Strength	180°C, 1 S & 420 N: APET	gm/25mm	JBF Method	800	800	800	800
		PVC			800	800	800	800
		PS			800	800	800	800
		PP			800	800	800	800
		HDPE			800	800	800	800
		Seal to Seal			450	450	450	450
	Optical							
1	Haze		%	ASTM D 1003	12	12	12	12
	Thermal							
1	Shrinkage @150° C/30'	MD	%	ASTM D 1204	2.2	2.0	2.0	2.0
		TD			0.4	0.4	0.4	0.4
2	Anti fog Test (Hot & Cold)			JBF Method	Pass	Pass	Pass	Pass

Sealable Peelable – White

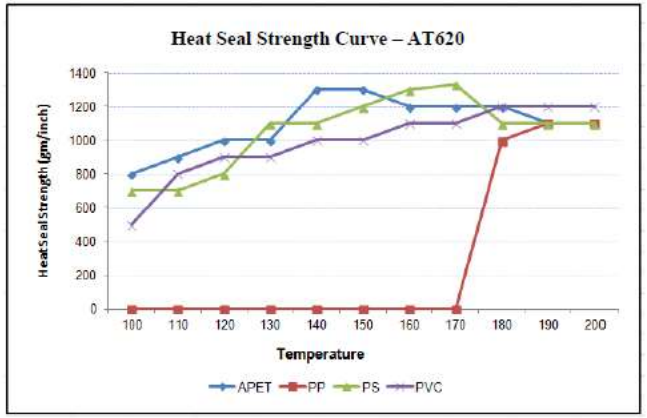
AT620 is two side White Sealable Peelable films available in different thickness from 80 ga to 208 ga.

Special Property:- Has excellent Anti-Fog properties for both Hot or cold food packing application.

Seal & Peel Substrate :- This film can seal to APET, CEPT, PETG, PVC, PP & PS.

Food Type Recommended:- Suitable for Oily & Non Oily Food items.

Heat Seal Strength profile



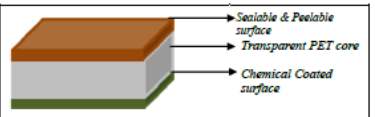
Sealed at 420N, 1 Second

JBF

Technical Data Sheet
ARYAFILM – AT620
(Provisional)

ARYAFILM

ARYAFILM AT620 is Milky white film with one side Heat sealable & peelable, other side Chemical Coated Polyester film suitable for dry & wet products for packaging application. Heat sealable layer designed to Seal & Peel with APET, CPET, PETG, PVC, PP & PS. It is recommended for Non oily and oily food items.



Sr.No.	Properties		Unit	Test Method	Typical Values				
	General								
1	Thickness		Micron (Gauge)	JBF Method	20 (80)	25 (100)	30 (120)	38 (152)	52 (208)
2	Yield		M^2/Kg	JBF Method	35.71	28.5	23.80	18.79	13.73
3	Density		gm/cc	ASTM D 1505	1.4	1.4	1.4	1.4	1.4
	Mechanical								
1	Tensile Strength at break	MD	Kg/cm^2 (Kpsi)	ASTM D 882	2100 (29.8)	2000 (28.4)	2000 (28.4)	2000 (28.4)	1900 (27.0)
		TD			2200 (31.2)	2100 (29.8)	2100 (29.8)	2100 (29.8)	2000 (28.4)
2	Elongation at break	MD	%	ASTM D 882	130	130	130	130	130
		TD			120	120	120	120	120
3	Co-efficient of friction	Static	--	ASTM D 1894	0.55	0.55	0.55	0.55	0.50
		Dynamic			0.50	0.50	0.50	0.50	0.50
4	Heat Seal Strength 180°C, 1S & 4Bar (Minimum)	PP	gm /25mm	JBF Method	1000	1000	1000	1000	1000
		PS			1000	1000	1000	1000	1000
		APET			1000	1000	1000	1000	1000
		PVC			1000	1000	1000	1000	1000
	Thermal								
1	Shrinkage @150° C/30'	MD	%	ASTM D 1204	1.4	1.4	1.4	1.4	1.4
		TD			0.4	0.4	0.4	0.4	0.4
2	Melting Point		°C	DSC	255	255	255	255	255
	Surface treatment								
1	Sealable side		Dynes/cm	ASTM D 2578	<38	<38	<38	<38	<38
	Coated side				44	44	44	44	44
	Barrier Properties								
1	W.V. T.R 38°C 90%RH		gm/m^2/day gm/100in^2/y	ASTM F1249	28 (1.68)	22 (1.32)	18 (1.16)	15 (0.9)	10 (0.64)
2	O.T.R 23°C 0 %RH		cc/m^2/day cc/100in^2/day	ASTM F-3985	80 (4.80)	70 (4.20)	60 (3.87)	50 (3.0)	40 (2.58)

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Re 01/07/2018

Sealable Peelable – Metallised

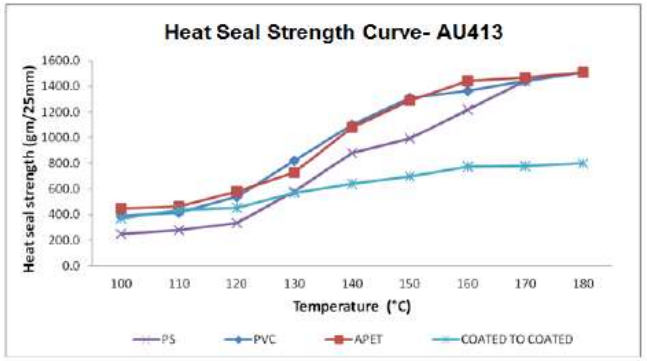
AU413 is metallised coated Sealable Peelable films available in different thickness from 100 ga to 208 ga.

Special Property:- Has excellent Anti-Fog properties for both Hot or cold food packing application.

Seal & Peel Substrate :- This film can seal to APET, CPET, PETG, PVC& PS.

Food Type Recommended:- Suitable for Oily & Non Oily Food items.

Heat Seal Strength profile



Sealing condition: Sealed at 420 N, 1 second

Technical Data Sheet
ARYAPEEL – AU413

ARYAFILM

ARYAPEEL AU413- one side Heat sealable & peelable; other side metalized Polyester film suitable for lidding application. Heat sealable layer designed to Seal & Peel with APET, CPET, PETG, PVC & PS. It is recommended for Oily and Non-oily food items.

Sr.No.	Properties		Unit	Test Method	Typical Values		
General							
1	Thickness		Micron (Gauge)	JBF Method	25 (100)	38 (152)	52 (208)
2	Yield		M^2/Kg	JBF Method	28.5	18.79	13.73
Mechanical							
1	Tensile Strength at break	MD	Kg/cm^2 (Kpsi)	ASTM D 882	2000 (28.4)	2000 (28.4)	1900 (27.0)
		TD			2100 (29.8)	2100 (29.8)	2000 (28.4)
2	Elongation at break	MD	%	ASTM D 882	130	130	130
		TD			120	120	120
3	Co-efficient of friction	Static	--	ASTM D 1894	0.80	0.80	0.80
		Dynamic			0.60	0.60	0.60
4	Heat Seal Strength 180°C,1S & 4Bar	PS	gm /25mm	JBF Method	1000	1000	1000
		APET			1000	1000	1000
		PVC			1000	1000	1000
Thermal							
1	Shrinkage @150^0 C/30'	MD	%	ASTM D 1204	2.0	2.0	2.0
		TD			0.4	0.4	0.4
2	Melting Point		^{0}C	DSC	255	255	255
Barrier Properties							
1	W.V, T.R 38^{0}C 90%RH	Optical Density 2.3	gm/m^2/day gm/100in^2/y	ASTM F1249	0.5 (0.032)	0.5 (0.032)	0.5 (0.032)
2	O.T.R 23^{0}C 0 %RH		cc/m^2/day cc/100in^2/day	ASTM F-3985	0.6 (0.038)	0.6 (0.038)	0.6 (0.038)

Sealable Peelable – Transparent Barrier

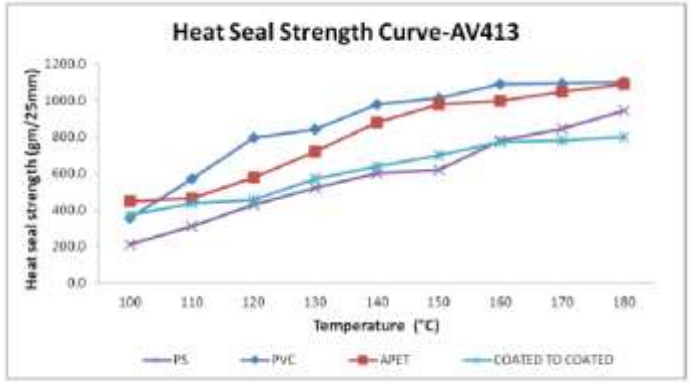
AT620 is two side White Sealable Peelable films available in different thickness from 80 ga to 208 ga.

Special Property:- Has excellent Anti-Fog properties for both Hot or cold food packing application.

Seal & Peel Substrate :- This film can seal to APET, CEPT, PETG, PVC, PP & PS.

Food Type Recommended:- Suitable for Oily & Non Oily Food items.

Heat Seal Strength Profile



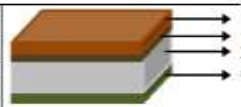
Sealing condition: Sealed at 420 N, 1 second

JBF

Technical Data Sheet
ARYAPEEL- AV413

ARYALOX

ARYAPEEL AV413 - One side Heat Sealable peelable with Barrier property, other side Chemically Treated Polyester film suitable for lidding application. Heat sealable layer designed to provide Seal & Peel with APET, CPET, PETG, PVC & PS. It is recommended for Non oily and Oily food items.



Sr. No.	Properties		Unit	Test Method	Typical Values	
			General			
1	Thickness		Micron (Gauge)	JBF Method	25 (100)	52 (208)
2	Yield		M^2/Kg	JBF Method	28.57	13.73
			Mechanical			
1	Tensile Strength at break	MD	Kg/cm^2 (Kpsi)	ASTM D 882	2000 (28.4)	1900 (27.0)
		TD			2100 (29.8)	2000 (28.4)
2	Elongation at break	MD	%	ASTM D 882	130	130
		TD			120	120
3	Co-efficient of friction	Static	–	ASTM D 1894	0.90	0.90
		Dynamic			0.70	0.70
4	Heat Seal Strength 160°C,1S & 420 N	PS	gm /25mm	JBF Method	800	800
		APET			800	800
		PVC			800	800
			Optical			
1	Haze		%	ASTM D 1003	10	10
			Thermal			
1	Shrinkage @150° C/30'	MD	%	ASTM D 1204	1.8	1.4
		TD			0.0	0.0
			Barrier			
1	W.V. T. R. (Max.) 38°C 90%RH		Gm/m2/day Gm/100in2/day	ASTM F 1249	2.0 0.12	2.0 0.12
2	O.T.R (Max.) 23°C 50%RH		Cc/m2/day CC/100in2/day	ASTM D 3985	6.0 0.36	6.0 0.36