SOLUBAG REUSABLE BAG

MANUFACTURER SPECIFICATIONS

1.0. MATERIAL

This particular bag is made of 100% Polyvinyl Alcohol (PVA).

Polyvinyl Alcohol commonly known as PVA which is a water-soluble synthetic polymer with excellent film-forming, emulsifying and adhesive properties.

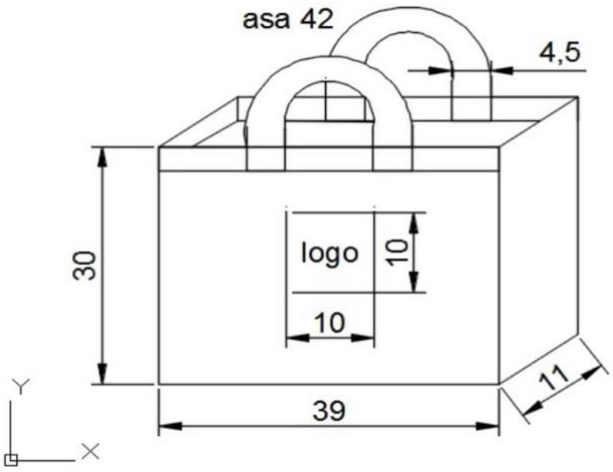
PVA is colorless (white) and odorless; resistant to oil, grease and solvents. It has high tensile strength and flexibility. With its unique features of biocompatibility, it is widely used for various applications in textile, paper and even in the medical industry for eye contacts or eye drops.

With water solubility and biodegradable properties, it can be completely dissolved in water. In natural environment, microbes ultimately break the products into carbon dioxide and water. After returning to the natural environment, it is non-toxic to the plants and animals.

This particular bag can be used as secondary packaging if several of the primary packages are placed in the bags for the purpose of transporting primarily retail goods.

SOLUBAG material does not contain any percent of plastic materials such as PP, HDPE, LDPE, PS, PVC, PET.

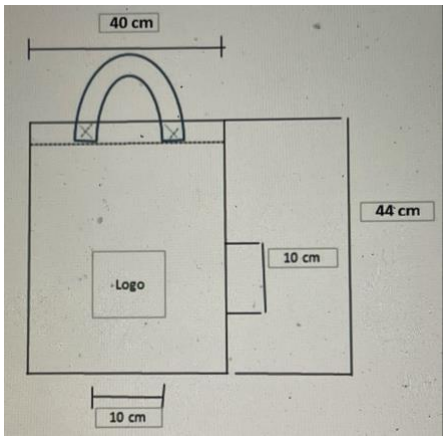
TEST ITEM		UNIT	TEST METHOD	TEST RESULT
THICKNESS		mm	CNS 1479	0.22
WEIGHT		g/m2	CNS 1479	40
DENSITY		g/cm3	CNS 1479	0.181
BREAKING STRENGTH	**(MD)**	N	ISO 9073-18	120
	(CD)	N	ISO 9073-18	89
HANDLE STRENGTH		N	KNWA 2884	96
SEAM STRENGTH		N	ISO 9073-18	186
WATER SOLUBLE TEMPERATURE		ºC		+85
MASS PER UNIT AREA		g/m2	ISO 9073-1	27



2.0 SHAPE AND DIMENSIONS
Height = 30 cm.
Width = 39 cm.
Load Capacity = 8 kg.
GSM = 40.
Layers = 1.
Confection = Cotton Thread.
NB:
For a fast dissolve need water over 85ºC.

Solu BAG
AFRICA PTY LTD

Flat
BAG

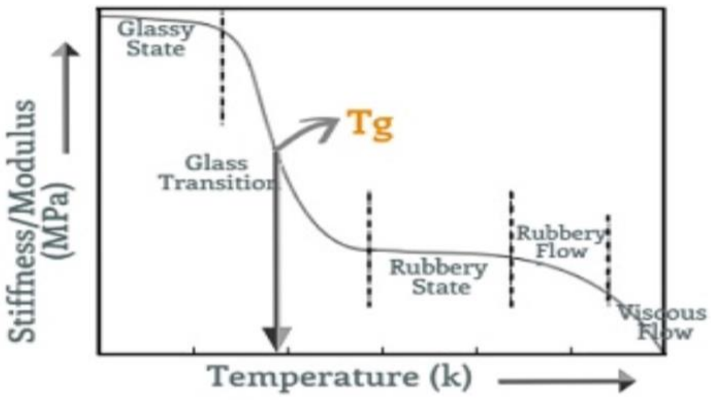


2.0 SHAPE AND DIMENSIONS
Height = 44 cm.
Width = 40 cm.
Load Capacity = 6 kg.
GSM = 40.
Layers = 1.
Confection = Cotton Thread.
NB:
For a fast dissolve need water over 85ºC.

UNDERSTANDING GLASS TRANSITION TEMPERATURE, Tg, OF A POLYMER

Glass transitionTemperature (Tg)

The temperature at which an amorphous polymer material (or plastic, a term used to generally refer to polymers) turns into a viscous liquid or rubbery form when heated is known as the glass transition temperature (*Tg*). A layman's definition of the glass transition temperature of a polymer is the temperature at which an **amorphous** polymer changes from a ***hard or glassy state to a softer, often rubbery or viscous state***. For example, when Polystyrene or Polypropylene or any other polymer granules are heated, the material softens just before it melts. That temperature at which the polymer softens is called the **glass to rubber transition temperature** or simply, Tg.

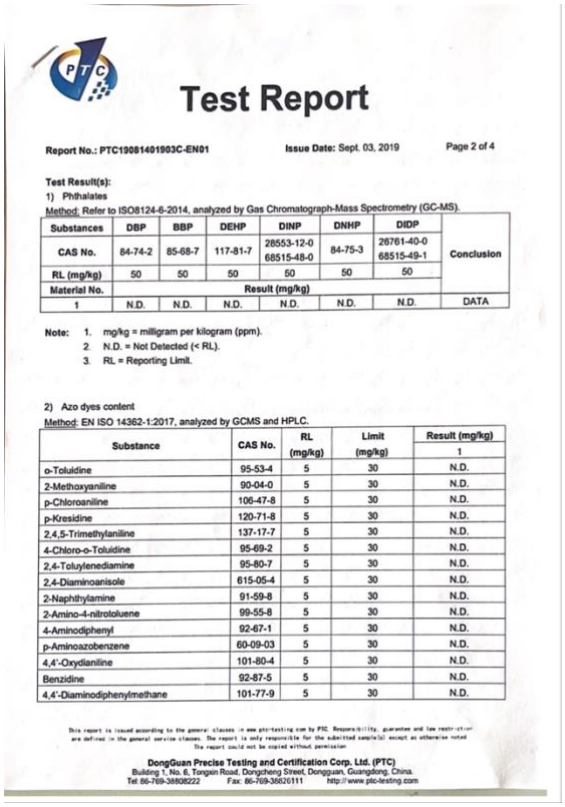


Do all polymers have a Tg?

Yes, nearly all polymers will have a Tg, provided they have both **crystalline** and **amorphous** phases. Generally, crystalline polymers will have some **amorphous portions** and **crystalline phases**. This is why the same sample of a polymer can have both a glass transition temperature, Tg, and a melting temperature. Tm.

However, pure **crystalline polymers do not have a glass transition temperature** (Tg) because the glass transition temperature is **only applicable to amorphous or non-crystalline polymers. Pure crystalline polymers do not have a glass transition temperature.**

- **In summary, Amorphous polymers only exhibit a Tg.**
- **Crystalline polymers exhibit a Tm (melt temperature) and typically a Tg if it has an amorphous ("semi"-crystalline). portion as well**
- The value of Tg for most synthetic polymers lies between **170°K and 500°K (-103°C and 227°C).** Pure crystalline polymers do not have a glass transition temperature because the glass transition temperature is only applicable to amorphous polymers



Test Report

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Test Result(s):

1) Phthalates

Method: Refer to ISO8124-6-2014, analyzed by Gas Chromatograph-Mass Spectrometry (GC-MS).

Substances	DBP	BBP	DEHP	DINP	DNHP	DIDP	Conclusion
CAS No.	84-74-2	85-68-7	117-81-7	28553-12-0 68515-48-0	84-75-3	26761-40-0 68515-49-1	
RL (mg/kg)	50	50	50	50	50	50	
Material No.	Result (mg/kg)						
1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	DATA

Note: 1. mg/kg = milligram per kilogram (ppm).
2. N.D. = Not Detected (< RL).
3. RL = Reporting Limit.

2) Azo dyes content

Method: EN ISO 14362-1:2017, analyzed by GCMS and HPLC.

Substance	CAS No.	RL (mg/kg)	Limit (mg/kg)	Result (mg/kg)
				1
o-Toluidine	95-53-4	5	30	N.D.
2-Methoxyaniline	90-04-0	5	30	N.D.
p-Chloroaniline	106-47-8	5	30	N.D.
p-Kresidine	120-71-8	5	30	N.D.
2,4,5-Trimethylaniline	137-17-7	5	30	N.D.
4-Chloro-o-Toluidine	95-69-2	5	30	N.D.
2,4-Toluylenediamine	95-80-7	5	30	N.D.
2,4-Diaminoanisole	615-05-4	5	30	N.D.
2-Naphthylamine	91-59-8	5	30	N.D.
2-Amino-4-nitrotoluene	99-55-8	5	30	N.D.
4-Aminodiphenyl	92-67-1	5	30	N.D.
p-Aminoazobenzene	60-09-03	5	30	N.D.
4,4'-Oxydianiline	101-80-4	5	30	N.D.
Benzidine	92-87-5	5	30	N.D.
4,4'-Diaminodiphenylmethane	101-77-9	5	30	N.D.

DongGuan Precise Testing and Certification Corp. Ltd. (PTC)
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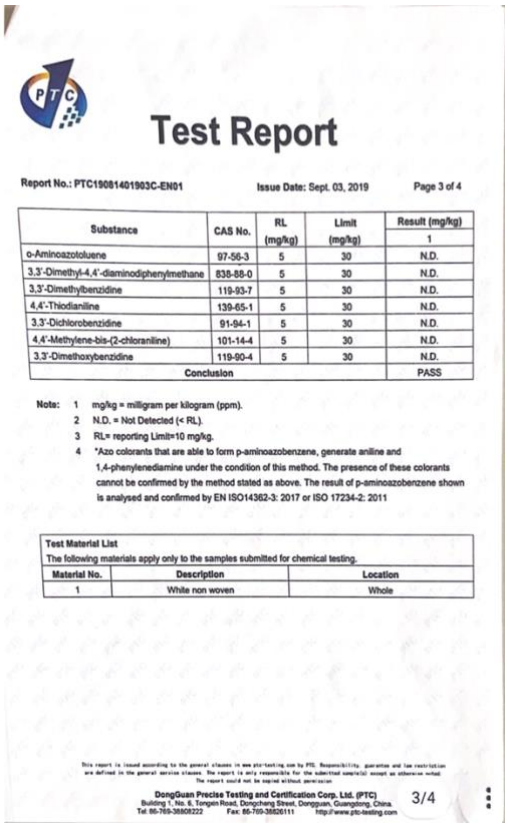

Test Report

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Substance	CAS No.	RL (mg/kg)	Limit (mg/kg)	Result (mg/kg)
				1
o-Aminoazotoluene	97-56-3	5	30	N.D.
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	5	30	N.D.
3,3'-Dimethylbenzidine	119-93-7	5	30	N.D.
4,4'-Thiodianiline	139-65-1	5	30	N.D.
3,3'-Dichlorobenzidine	91-94-1	5	30	N.D.
4,4'-Methylene-bis-(2-chloraniline)	101-14-4	5	30	N.D.
3,3'-Dimethoxybenzidine	119-90-4	5	30	N.D.
Conclusion				PASS

Note: 1 mg/kg = milligram per kilogram (ppm).
2 N.D. = Not Detected (< RL).
3 RL= reporting Limit=10 mg/kg.
4 *Azo colorants that are able to form p-aminoazobenzene, generate aniline and 1,4-phenylenediamine under the condition of this method. The presence of these colorants cannot be confirmed by the method stated as above. The result of p-aminoazobenzene shown is analysed and confirmed by EN ISO14362-3: 2017 or ISO 17234-2: 2011

Test Material List

The following materials apply only to the samples submitted for chemical testing.

Material No.	Description	Location
1	White non woven	Whole

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