

Statistics of Nonwoven Fabric Use in Bangladesh

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Abstract Use of nonwoven fabric in Bangladesh was not so familiar in the earlier days of its invention. But today, nonwoven fabric is widely used in Bangladesh in different sector. Unfortunately, we have only three manufacturers of nonwoven fabric in our country. For the use of our big market maximum amount of nonwoven is imported from different countries. In Bangladesh there is a large possibility to grow with nonwoven fabric industry as its usage is increasing day by day. This paper investigates the uses of nonwoven fabrics in Bangladesh in different field and the amount of imported nonwoven fabrics from various sources.

Keywords PP-Spun Bonded, GSM, Binders, Manufacturer, Importer

1. Introduction

In Bangladesh use of nonwoven fabric ranges from floor covering to clothing, shopping to seating and also used in industrial purpose. But maximum uses have seen in shopping bag. There are a lot of small industry in our country which are producing non-woven shopping bag from imported non-woven fabric. In our country there are also a lot of importer who import non-woven fabric and finished product. Besides shopping bag non woven also used in medical sector, industrial sector, agriculture sector, architecture sector, home furnishing, hygienic purpose and many other purpose in our country. This use of non-woven fabric in country is accelerated by its less cost, good property of color, absorbency, strength, light weight, durability, disposability and undisposability. Different sector have attracted to non-woven for its different property. Such as shopping bag needs high strength besides having good appearance. Medical sector and hygienic use need its disposability and absorbency. Durable property is needed for build tech and industrial sector use.

2. Application of Nonwoven Fabric

Non-woven fabric is used for various purpose in Bangladesh. They are as follows: shopping bag, mask, wipe, baby diapers, feminine hygiene products, adult incontinence items, dry and wet pads, Nursing pads or nasal strips. Medical: operation

drapes, gowns and packs, face masks, dressings and swabs, Clothing: interlinings, insulation and protection clothing, industrial works wear, chemical defence suits, shoe components, Home: wipes and dusters, tea and coffee bags, fabric softeners, food wraps, filters, bed and table linen, floor covering, pilo, Automotive: boot liners, shelf trim, oil and cabin air filters, moulded bonnet liners, heat shields, airbags, tapes, decorative fabrics, Construction: roofing and tile underlay, thermal and noise insulation, house wrap, under slating, drainage, Geo-textiles: asphalt overlay, soil stabilization, drainage, sedimentation and erosion control,

Filtration: water, air and gas filters, Industrial: cable insulation, abrasives, reinforced plastics, battery separators, satellite dishes, artificial leather, air conditioning, and coating., Agriculture, home furnishing, leisure and travel, school and office among all of these use it is widely seen the use of non-woven in various types of shopping bag and mask.

3. Sources of Nonwoven Fabric in Bangladesh

In Bangladesh there are only three producer of non woven. Most of the non woven have imported from different counties by a number of importer. These importer import non-woven fabric from China, Hong-kong, Taiwan and Korea.

3.1. Manufacturers of Nonwoven Fabric in Bangladesh

Against a large demand of non-woven in Bangladesh, we have not sufficient manufacturer in our country. In our country just three companies are employed in its manufacture. It is also have to take in account that, their

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production is not sufficient to fulfill our huge demand of non-woven fabric. These three companies are:

1. Asia group, Chittagong, Bangladesh
2. AB Group, Savar, Dhaka, Bangladesh
3. Hazi Enterprize, Narayangonj, Bangladesh

All these three manufacturers have maximum 5 tons capability of producing non-woven fabric. They are only producing pp-spun bonded nonwoven now.

Some company also take attempt to establish new factory for producing pp-spun bonded non-woven. Among them Simura non-woven limited stands one step ahead. They have built their factory with a capacity of producing maximum 50 lakh finished goods from non-woven. They have set machinery of taka 20 crore(US\$ 2.58 million). This company have ability of producing non-woven with 30 gsm, 40 gsm, 100 gsm and also 120 gsm.

3.2. Top Importers of Non-woven Fabric in Bangladesh

Asia group, New era, Simura nonwoven LTD, AMERI Bangla, SML Trade INT. LTD., Classic Trade INT., Roufia Ent., Petro-Chem Trade, Umayers global, United 45, Queen star, Das Corporation, Garter AED packaging ltd., Chittagong padding mills ltd. All of these companies are regularly importing a large varieties of non-woven from different countries, like polypropylene having gsm of 60,70, 80 and 120. They are also employed in importing different non-woven finished goods.

4. Raw Materials of Non Woven Fabric

The three categories of raw materials used to produce a nonwoven fabric are:

- * Fibers
- * Binders
- * Additives

Fibers

Fibers are the basic units of a nonwoven structure. Consequently, much of the utility properties and performance of a nonwoven is due to the fibers used. A fiber has been defined as any substance, natural or manmade, with a high length-to-width ratio and with suitable characteristics for being processed into a fabric.

A wide range of fiber types, both synthetic and natural, has been employed in the production of nonwoven products. It is very likely that every fiber known to mankind has been used in a nonwoven structure at one time or another. However, commercially important nonwoven fabrics have been limited to relatively few fiber types, in view of the large that are available.

The dominant fibers include polypropylene, polyester and rayon. Between them these three fiber types made up a substantial part of the overall nonwoven market for fibers. In Western Europe, for example, the three siteing for nearly

70% of staple fiber consumption by the nonwovens industry.

Binders

For many years, almost all nonwovens required a chemical binder in order to provide any measure of structural integrity. In addition, the binder was called upon to contribute and convey numerous properties that were necessary for the effective performance of the fabric.

In the very early stages of nonwoven development, different types of natural resins and glues were used to bond nonwovens. Later on, synthetic binders were developed to meet the structural and performance requirements of nonwoven fabrics.

Adding a latex binder can be a cost-effective way of consolidating a fiber web and achieving specific properties. It often results that adding a latex binder can be done at a lower cost than using a special binder fiber. In many cases, there can be a combination of chemical binder with mechanical and thermal bonding techniques, affording the finished fabric properties that would be impossible to achieve otherwise. Furthermore binder systems can accept pigments and dyes, so they can often help in adding colour to nonwoven fabrics.

Additives

Many non-fibrous materials are used in the manufacture, bonding and finishing of nonwoven webs. Many of these are applied in one form or another to the preformed web usually after bonding and as a secondary process.

Additive materials which are properly classified as raw materials are those added to the fibre or filament structure during web laydown and might include thermally active powders and absorbents.

5. Nonwoven Production Steps for Different Methods

5.1. General Production Steps for Nonwoven Fabric Manufacturing

Fibrous matter → Web bonding process → Bonding process → Finishing

5.2. Dry Bonded Fabric Production Process

Staple fibres → Dry –laid web → Mechanical, Chemical or thermal bonding technique → Finishing

5.3. Spun Bonded Fabric Production Process

Continuous Filament → Continuous Filament web → Mechanical, Chemical or thermal bonding technique → Finishing

5.4. Wet Bonded Fabric Production Process

Very short synthetic fibres → Wet laid web → Mechanical, Chemical or thermal bonding technique → Finishing

6. Data Related to Import Non Woven Fabric

As Bangladesh is importing a large volume of Non-woven fabric from abroad, a statistics is shown below (Table 1 and Table 2).

Table 1. Amount of Import % in year 2011 to 2013

Year	Amount (million US \$)	% of Total Import
2012-2013	188.98	0.6
2011-2012	170.60	0.5

Table 2. Amount of import from different Country

Country Name	Year 2012-13 (million US\$)	% of Total Import from Each Country	Year 2011-12 (million US \$)	% of Total Import from Each Country
China	117.41	1.8	106.47	1.6
Hongkong	38.01	6.1	29.90	5.5
Taiwan	5.57	0.7	5.37	0.7
Korea	1.47	0.1	0.73	0.01

6.1. Import Details of Two Importers are Given Below

1. Importers Name: SML Trade International

Address: Alambag Complex, Progoti Soroni, Merul Badda.
Dhaka, Bangladesh.

Table 3.

Imported Amount	5 Tons
Cost	US\$ 19297.57 (In BDT 15 00 000)
Type	PP Nonwoven, 60 GSM, 70 GSM, 80 GSM
From	China
Uses	Bag and Pillow

This company has been importing nonwoven fabric for the last three years (2010-2013) with a 4 month interval and last three times they had imported same amount in each shipment. At November, 2013 they have received their last shipment, above data (in table 3) is based on that shipment.

2. Importers Name: Jahid International

Address: Shekhertek, Mohammadpur, Dhaka, Bangladesh

Table 4.

Imported Amount	3.5Tons
Cost	US\$ 12865.04 (In BDT 10 00 000)
Type	PP Nonwoven, 70 GSM, 80 GSM
From	China
Uses	Bag

This company has been importing same amount of nonwoven fabrics (in table 4) in every shipment for last two years (2011-2013) with a four months interval.

7. Discussion about Data

Different importers are importing non-woven fabric and finished goods from various country of various amount. And every year the amount of import is increasing with the increased demand of non-woven.

According to information from Bangladesh Bank and Office of the Chief Controller of Export and Import, Govt of Peoples' Republic of Bangladesh, amount of imported non woven fabric is 0.6% of total amount of import goods in the year 2012-13. In the year 2011-12 it was 0.5%. This amount is calculated in million US\$ (Table 1). This information is not enough to describe the increasing use of non-woven in our country as it shows very small amount in percentage.

But the bulk import is described clearly by the following bar chart (figure 1):

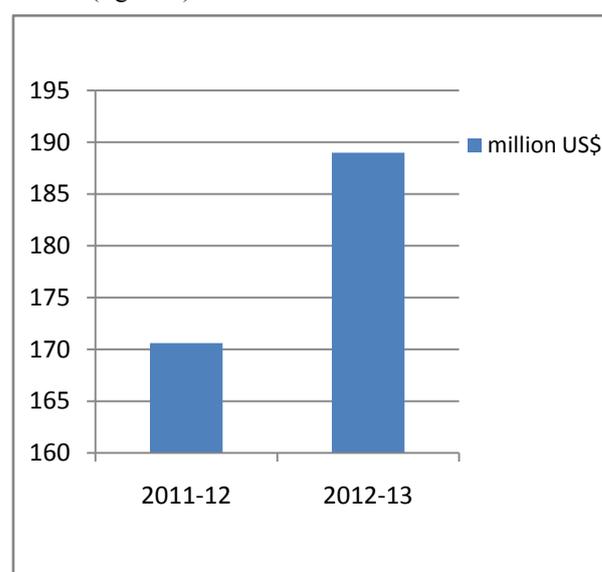


Figure 1. Bar chart showing import data of non-woven fabric in million US\$ during year 2011-12 and 2012-13

Here, it shows us the rapidly increasing demand of non-woven fabric in our country. By the year 2011-12, Bangladesh have imported non-woven which cost US\$ 170.60 million and in the year 2012-13 it have increased to US\$ 188.98 million. Transportation cost, inventory cost or VAT is not included in that cost but only the price of fabric.

This large amount of imported non-woven fabric is not imported from a single country. Different amount and different types of non-woven is imported from various country. Most of the imported non-woven comes from China and a very little amount is imported from Korea. Non-woven fabric imported from China is 1.8% of total goods imported from that country and it is a amount of US\$ 117.41 million by the year 2012-13. In the year 2011-12 it was US\$ 106.47 million, which was 1.6% of total imported goods from that country.

Second large amount of non-woven comes from Hong-kong and then Taiwan. Korea is listed in the bottom of this list. From Korea Bangladesh has imported non-woven of a amount of US\$ 1.47 million which is 0.1% of total

imported goods from that country in the year 2012-13. In the year 2011-12 it was reduced to US\$ 0.73 million which was 0.01% of the total imported goods from Korea.

The following two bar charts are clearly described the above data (in figure 2 and figure 3):

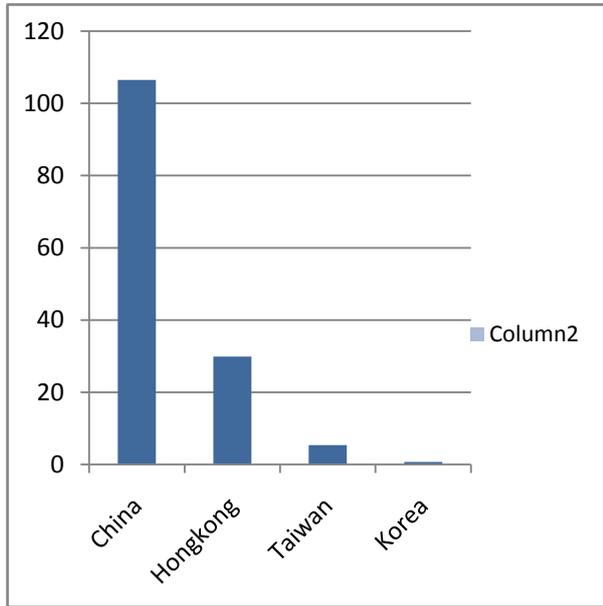


Figure 2. Bar chart showing import data of nonwoven fabric from different countries during 2011-12 in million US\$

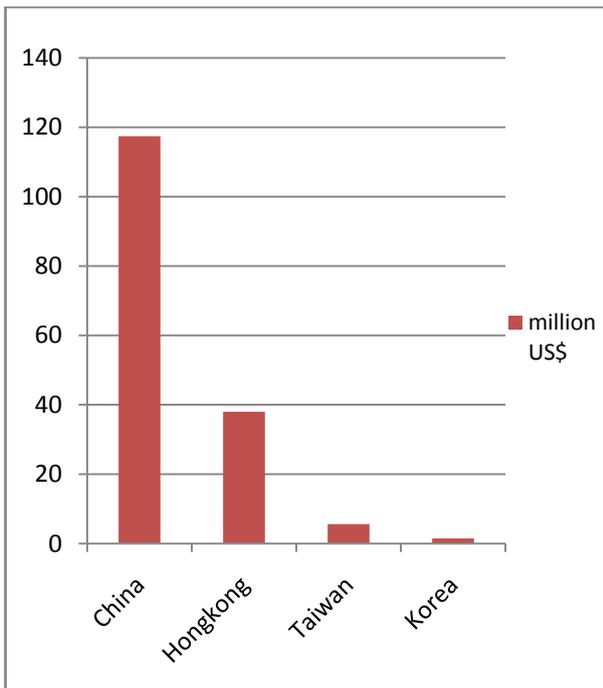


Figure 3. Bar chart showing import data of nonwoven fabric from different countries during 2012-13 in million US\$

From the above pie chart (figure 4), it is seen that, 72.27% nonwoven comes from China, 23.4% from Hong-kong, 3.42% from Taiwan and 0.91% nonwoven from Korea.

From above data it is clear that, the uses of non-woven fabric is gradually increased in our country as with the modern world. It also shows us, with the increased use of

non-woven, its import is also increasing which also means a increased transportation cost, inventory cost as well as the increased wastage or damage due to transport.

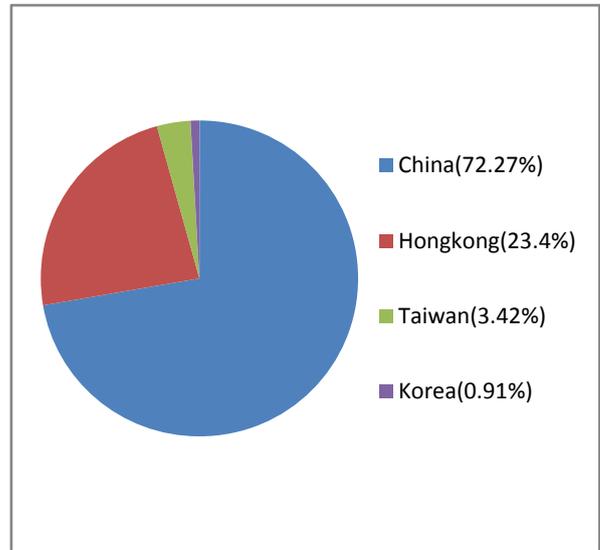


Figure 4. Pie chart showing percentage of nonwoven fabric imported from different countries to total imported Non-woven during year 2012-13

It is also clear that our three manufacturers are not enough to fullfill our large demand of non-woven. If we establish more non-woven factory, we can fullfill our continuously growing demand besides reducing damage, wastage and other unnecessary cost.

8. Conclusions

The worldwide use of nonwoven fabric is increasing day-by-day and this large market is controlled by the few number of countries. In that case, Bangladesh has large opportunity to capture this huge market by establishing a significant number of nonwoven fabric industries in Bangladesh. We have goodwill in ready-made garments and over all textile product sectors & by using this goodwill we can easily create a market for non-woven products.

It is necessary to set up some industry for producing non-woven not only for capturing global market, but also for our local market. In recent days non-woven fabric is imported from several countries in our country, this cause a lot of foreign currency losses. If we able to establish sustainable Non-woven manufacturing industry in Bangladesh, we can save this foreign currency as well as make our country economically strong. This also opens many new possibilities and chances for our country. New establishment create new employment; thousands of family can be benefited by this.

REFERENCES

[1] Horrocks, AR. and Anand, SC.(2000). Handbook of

- Technical Textile. Wood Head Publication. Cambridge, England.
- [2] Belal, SA. (2009). Understanding Textiles for a Merchandiser. Banani, Dhaka, Bangladesh.
- [3] Albrecht, W. Fuchs, H. and Kittelmann, W. Nonwoven fabrics: Raw materials, Manufacture, Applications, Characteristics and Testing process, Die Deutsche Bibliothek, Germany.
- [4] Patel, M. A Review on Nonwoven Fabrics Used in Apparel. http://www.academia.edu/634069/A_Review_on_Nonwoven_Fabrics_Used_in_Apparel.
- [5] Chaudhari, S. Mandot, A. Milin, P. and Karansingh, M. A Review on Nonwoven Fabrics. <http://www.fibre2fashion.com/industry-article/16/1584/a-review-on-nonwoven-fabrics-used-in-apparel1.asp>.
- [6] Sakhtivel, S. Ramachandra, T. Chandhanu, R. Padmapriya, J. Vadivel, P and Vignesh, R. Nonwoven Interlinings in Apparels. <http://www.indiantextilejournal.com/articles/FAde tails.asp?id=3927>.
- [7] The Diaper Industry Source. <http://www.disposablediaper.net>.
- [8] Nonwoven Fabric. <http://en.wikipedia.org/wiki>.
- [9] <http://www.textileschool.com/articles/431/non-woven-fabrics>.
- [10] Financial Stability Report, 2013, Bangladesh Bank.
- [11] Office of the Chief Controller of Export and Import, Govt Peoples' Republic of Bangladesh.