

What is Newsprint ?

TRIPATHI R. S.*

Newsprint is a paper of printing category, embassing in itself the qualities like runnability, opacity and low cost. Its role in modern national and international societies cannot be over emphasised. Modern Journalism and publishing cannot survive without Newsprint.

According to the FAO Conference held in Tokyo in the year 1960 on Newsprint, it was defined as under :—

“The term Newsprint will be used without any restriction as to fibre composition, thickness, ash content, degree of sizing or furnish. It will then apply to any kind of paper capable of being run through modern printing press and of producing an acceptable sheet of printed Newsprint at a reasonable cost”.

The above definition breaks away from any rigid restrictions or specifications. In general, it was agreed by the Committee to adhere to the following minimum characteristics (1965).

Tear (Average)	:	24 GM
Opacity (%)	:	86
Brightness (%)	:	50 (Mgo)
Basis weight (GSM)	:	52

However, the modern trend is to go for lower gram weight Newsprint as the consumers get more printing area for the same weight of the paper. Even 40 GSM Newsprint is reported to have been produced.

QUALITIES OF GOOD NEWSPRINT :

The following properties are required from good Newsprint :—

- (1) Runnability.
- (2) Good printability.
- (3) Minimum two sidedness.
- (4) Uniformity.

To achieve and maintain the above paper properties the following requirements must be met by the pulp furnish :—

- (a) Low freeness (50 CSF)
- (b) Specially good screening.
- (c) Good pulp strength properties.
- (d) Uniform pulp quality.

- (e) Controlled bleaching system to maintain required brightness.

PULP FURNISH FOR NEWSPRINT :

As we know, to achieve the above qualities of runnability opacity and at the same time better economy, we have to go for pulps of very high yield with properties to give the desired effect. Ground wood and mechanical pulp has come to our help. Various processes like stone ground wood, pressure ground wood, thermo mechanical pulp from chips, chemi mechanical pulps of various types depending on the chemical used, and last but not least, the CTMP (Chemi Thermo Mechanical Pulp). As such, these pulps are of very high yield above 90%. They have got certain distinct features of their own such as the distinct long fibre fraction and the distinct short fibre or filler fraction called as 'Mellsstoff'. These long fibres give the pulp the quality of wet web strength, but they are very poor so far as sheet formation and optical properties are concerned. Short filler Pulp/Mellsstoff gives the pulp homogeneous structure, good formation, better bonding and good opacity. Such properties cannot be obtained, rather cannot be imagined from chemical pulps, which in turn give poor opacity, which is a big defect for Newsprint.

The major constituent of Newsprint is mechanical pulp. This mechanical pulp has to have good wet web strength. Whole of our efforts in modern Newsprint technology have been directed towards this end. One of the most recent developments in the field of mechanical pulping is the introduction of interstage sulphonation process. Its primary purpose is to improve the wet web strength of the sheet as per Opco process. This process is of primary interest to the mills operating with fourdrinier paper machine with poor pick up conditions. The major question will be the economy of the process, whether to invest more in pulp mill to get better runnability at the machine or to invest less in the pulping with certain limitations on wet end of the machine. The wet end of the paper machine is in itself under drastic changes of development. Papri forma, twin wire forma and others

*Works Manager,
The Mandya National Paper Mills Ltd.,
Belagula-57. 606 (KARNATAKA)

are in the picture. The press section with ENP configuration and hot presses with trinip are the most modern development in the field. This in itself means higher wet web strength as sheet enters the drier section at a much higher solid content.

The bonding properties of mechanical pulp can be improved by Ozone and Chlorine dioxide treatment. But this process again will need its techno economic gestiation to produce ozone at a very much cheaper rate.

The modern trend is to go for chemi mechanical pulping. As is clear from the trend, CMP and TMP will be the major pulps for Newsprint manufacture. Steam regeneration from TMP process has become a reality. There are indications that a competition may crop up from the side of PGW for future pulp production. The lower energy consumption and improved printability alleged by PGW is however offset by its lower physical strength.

NEWSPRINT FURNISH COMPOSITIONS :

Some of the furnish compositions are given as under :

(1) Fuzi in Japan is using alkali mechanical pulp and the furnish composition is as follows :

Alkali mechanical pulp	40%
Bleached ground wood pulp	50%
Kraft chemical pulp	10%

(2) In Sweden, the composition used is as follows :

Neutral sulphite mechanical pulp from chips	10%
Bleached ground wood pulp	75%
Sulphite chemical pulp	15%

(3) Hokaido in Japan is using neutral sulphite mechanical pulp from birch upto 30%, bleached ground wood pulp 50% and sulphate chemical pulp 12%.

(4) In USA, Great Norzern is using 30% Chemi mechanical pulp, 58% bleached wood pulp and 12% sulphite chemical pulp.

(5) In Austria, the composition is as follows :

Birch chemi mechanical pulp	12%
Bleached ground wood pulp	76-78%
Sulphite chemical pulp	10-12%

From the above it is quite clear that chemi mechanical pulp obtained from short fibre hard woods cannot be used fully in Newsprint furnish compositions. If we have to use 100% ground

wood pulp for Newsprint manufacture, we have to go for soft wood pulps.

BAGASSE NEWSPRINT :

The bagasse newsprint is paper made from at least 50% bagasse pulp having good printing qualites like runnability, opacity and rapid ink absorption. The opacity is one of the most important characteristics of newsprint. The chemical treatment drastically reduces opacity. Mechanical pulp from bagasse has some unique properties. It has very high opacity, good drainage characteristics and good printing quality. The main drawback of bagasse mechanical pulp lies in its low wet strength. This has to be further improved by addition of long fibre pulps.

WASTE NEWSPAPER NEWSPRINT :

The system is a washing deinking system specifically designed for recovering fibre from the waste newspaper. In operation, the waste newsprint is first transported by elevators to batch pulpers and then deinked in the presence of chemicals, i.e. Surfactant, Sodium Silicate and Caustic etc. The fibre consistency is approximately 5.5%. This deinking step is a batchwise operation, each batch taking about 35 minutes.

After deinking the pulp is discharged into a continuous pulper, which serves as a hold up tank for the subsequent continuous pulp cleaning operation.

The deinked pulp is mixed with other fibres and sent to Paper Machine.

The effluent can be clarified and underflow thickened, pressed and sent to boiler.

Typical yield is 85% on OD fibre. The brightness varies from 48-49% GE for old Newsprint to 50-52% GE for fresh Waste Newsprint.

With the developments of modern technologies it has become possible to make newsprint out of 100% single furnish.

A good quality Newsprint has been tried from 100% TMP. Further, pulping and deinking of used Newsprint has improved to a greater extent. Garden State Paper Company is having its own system of deinking and recycling of 100% waste news for making newsprint. All these developments and further improvements in pulping and bleaching technologies clearly indicate that the future is very bright.