

Study of Ready Mix Concrete

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Abstract- Ready mix concrete was first patented in Germany in 1903, its commercial delivery was not possible due to lack of transportation needs. The first commercial delivery was made in Baltimore USA in 1913. The first revolving drum type transit mixer was developed in 1926. In 1931, a RMC plant was set up for the construction of Heathrow airport, London. In the mid 90's there were about 1100 RMC plants in UK consuming about 45% of cement produced in that country. In Europe in 1997 there were 5850 companies producing a total of 305 million cusecs of RMC. In USA by 1990, around 72% (more than 2/3rd) of cement produced was being used by various RMC plants. In Japan first RMC plant was set up in 1949. By 1992 Japan was the then largest producer of RMC, producing 18196 million tons of concrete. In many other countries of the world including some of the developing countries like Taiwan, Malaysia etc, RMC industry is well developed.

Keywords- Concrete, Cement, Aggregate, Flyash, Transit mixer.

I. INTRODUCTION

Ready-mix concrete (RMC) is a ready-to-use material, with predetermined mixture of cement, sand, aggregates and water. RMC is a type of concrete manufactured in a factory according to a set recipe or as per specifications of the customer, at a centrally located batching plant. It is delivered to a worksite, often in truck mixers capable of mixing the ingredients of the concrete en route or just before delivery of the batch. This results in a precise mixture, allowing specialty concrete mixtures to be developed and implemented on construction sites. The second option available is to mix the concrete at the batching plant and deliver the mixed economy. It also decreases labour consequent concrete to the site in an agitator truck, which keeps the mixed concrete in correct form.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

While ready mixed concrete can be delivered to the point of placement in a variety of ways, the overwhelming majority of it is brought to the construction site in truck-

mounted, rotating drum mixers. Truck mixers have a revolving drum with the axis inclined to the horizontal

- 1) Pan mixer
- 2) Slurry mixer

III. STUDIES AND FINDINGS

All the ingredients used for preparation of the concrete, are thoroughly tested for their quality and physical properties in a well equipped laboratory attached to the plant for conformity to relevant Indian Standard Codes. The moisture probe determines the water content in the sand and aggregates. This accordingly helps in fixing the proportion of water to be added for the preparation of the mix. The sand being used is passed through the mechanized sieving system, before feeding for mixing. Trial mixes are carried out and tested to ensure that each and every batch of concrete coming out of the plant meets the parameters of client's requirements. The sand being used is passed through the mechanized sieving system, before feeding for mixing.

IV. IMPROVEMENT AS PER REVIEWER COMMENTS

TESTS ON FINE AGGREGATES

1. Sieve Analysis
2. Specific Gravity
3. Bulk Density (Loose / Rodded)
4. Silt Test by Volume / Weight
5. Water Absorption
6. Sulphite / Chloride / Alkali Reactivity
7. Organic Impurities

V. CONCLUSION

1. Better quality concrete is produced.
2. Elimination of storage space for basic materials at site.
3. Elimination of Procurement / Hiring of plant and machinery
4. Wastage of basic materials is avoided.
5. Labour associated with production of concrete is eliminated

6. Time required is greatly reduced
7. Noise and dust pollution at site is reduced.
8. Organization at site is more streamlined.
9. Durable & Affordable
10. No storage space required either for raw materials or for the mix
11. Lower labour and supervisory cost

REFERENCES

- [1] Faster production capability than a transit-mix plant •
Improved concrete quality control and consistency and •
Reduced wear on the truck mixer drums.