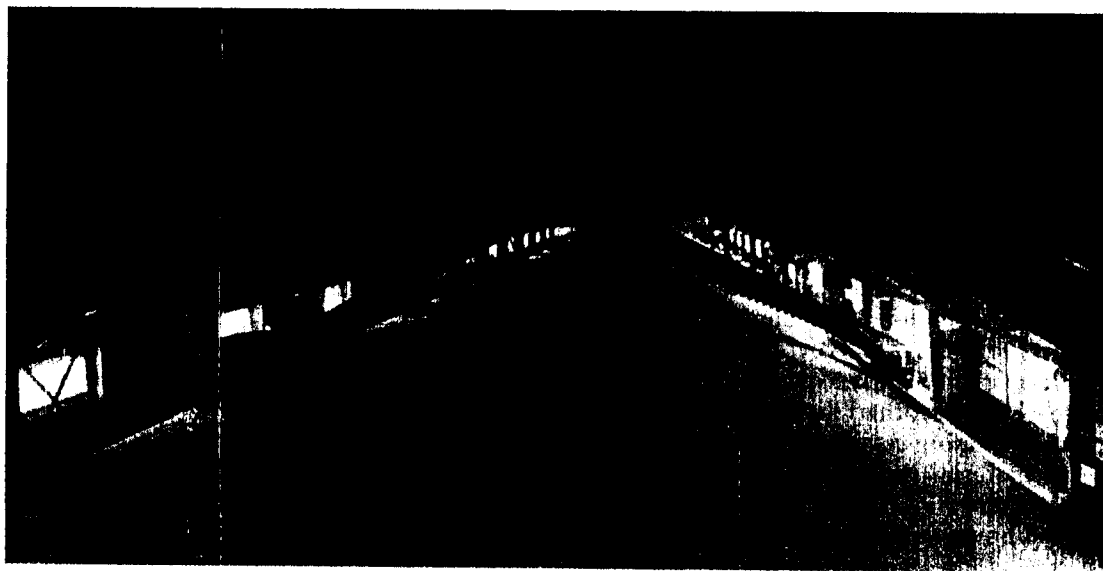


How To Start Manufacturing Industries

Fertilizer Blending Plant

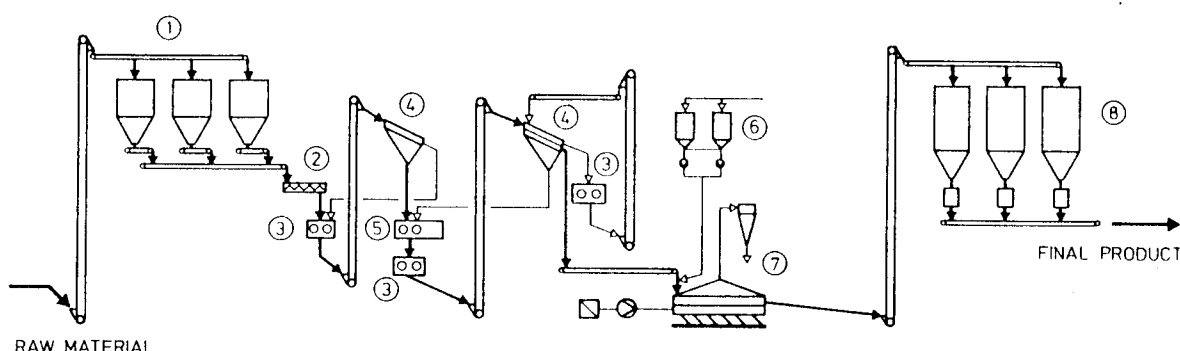


Introduction

Everybody knows about the necessity to increase the world's food-production. That, of course, also increases the need for mechanical and chemical aids. The application of fertilizers, even in minor quantities, and in combination with high-grade seed material could result in a drastic increase of the food-production.

The production of fertilizers, however, is a complex technical procedure and requires high capital-investments. The fertilizer blending plant is an alternative to mix and compact nitrogen, phosphate and potash fertilizer on the basis of raw materials that are either imported or even locally available. Production can be made in smaller units that are easier to operate without renouncing the advantages of mass production.

Flow sheet:



- | | |
|--------------|--------------|
| 1 Intake | 5 Compaction |
| 2 Mixing | 6 Dosing |
| 3 Crushing | 7 Cooling |
| 4 Separation | 8 Bagging |

Description of the Production Process

The fertilizer blending plant described here is a unit of 30,000 t annual capacity. It is subdivided into 3 main sections:

1. storage section
2. blending section
3. bagging and loading station

1. Storage section

The raw materials – for example Urea, DAP or MAP – which have been transported to the plant by means of trucks, are dumped into a concrete feeding bunker. The materials are conveyed into compartments of a stockpile system. The processing plant is fed by a portal scraper-reclaimer and subsequent conveying system.

2. Blending section

The various raw-material flows are extracted with the help of weigh-belt feeders to be conveyed to a mixing screw conveyor. The product which by then has been mixed at the desired ratio, is conveyed to a toothed disk mill where it is crushed. After passing a cyclone and a bucket elevator, the material reaches the compactation machine via a vibration feeder. There it is pre-compacted by means of dosing screws. The subsequent actual compacting is done at high pressure. The pressed and compacted fertilizer is conveyed to the separation unit. The grain of correct size is taken out of the production, where the fines are returned to the compactation machine and the oversized grain is milled down to correct size.

In the course of the compactation process the product has been heated and consequently must be cooled down to approx. 50 °C which is done in a cooler.

3. Bagging and loading station

The bagging line is fed from cooler by means of belt conveyors and bucket elevators leading to the bagging machines. A collecting conveyor under the bagging machines transfers the filled and closed bags to the final product storage or alternatively to a truck loading station.

Example of the Plant

Required Machinery and Equipment

Item	Description	Pieces
1	Storage section	1
1.1	Conveying system	1
2.	Blending section	1
2.1	Daily storage silos	3
2.2	Conveying system	1
2.3	Crusher	2
2.4	Separator units	2
2.5	Compaction machine	1
2.6	Cooler	1
2.7	Dosing unit	1
2.8	Dedusting unit	1
3	Bagging and loading station	1
3.1	Conveying system	1
3.2	Bagging machines	3
3.3	Storage System	1
3.4	Loading station	1
FOB-price for machinery and equipment		US\$ 3,250,000.00

Required Buildings and Areas

Administration	250 sq.m
Raw material storage	1,200 sq.m
Blending section	420 sq.m
Final product storage	480 sq.m

Required Manpower

Management	3
Production manager	1
Foremen	3
Workers	16
Helpers	16
Quality control	1
Maintenance	3
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Required Power and Utilities

Electric power, installed	800 kW
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Required Raw Materials

Capacity of the plant at one-shift operation:	30,000 t/year
Possible recipe Urea	13,800 t/year
Diamon-phosphate	7,600 t/year
SIO2 filler	8,600 t/year

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