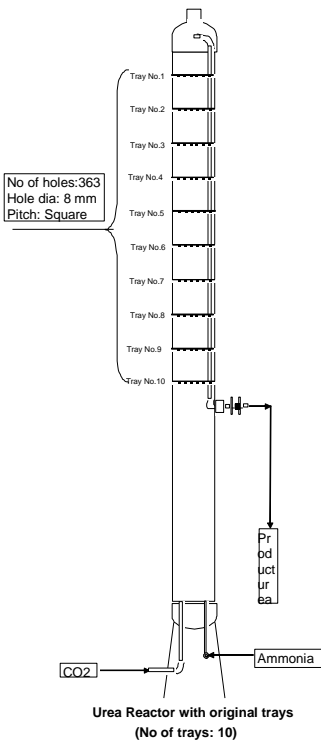


Energy Conservation Measure implemented in 2007-08

ID	Title of the measure	Sector: Fertilisers
Year	1. Installation of modified trays in Urea reactor of 31 & 41 units of Urea Plant	Technology: Snamprogetti, Italy

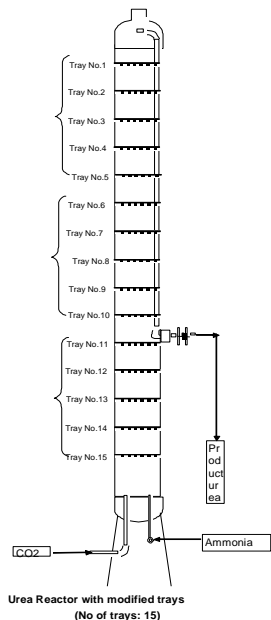
Installation of modified trays in Urea reactor of 31 & 41 units of Urea Plant

Original System:



Original system

Liquid Ammonia is pressurised up to a pressure of 240 Kg/cm²g by High Pressure Reciprocating Ammonia Feed Pump & gaseous CO₂ is pressurised by CO₂ Compressor (centrifugal type) up to a pressure of 160 Kg/cm²g and fed to Reactor. Ammonia and CO₂ react at elevated temperature and pressure to form Ammonium Carbamate. This reaction is instantaneous and goes to 100% completion whereas in the second reaction (Ammonium Carbamate Breaking into Urea and water) is slow and conversion is only around 60-62%. It may be noted that higher the conversion, lesser will be the energy required to separate unconverted Ammonium Carbamate by decomposition in subsequent sections and recycling back into the system. To enhance conversion, plug flow shall be maintained and back mixing of fluids inside the Reactor shall be avoided. This is achieved by providing 10 nos. of identical sieve trays (each having 363 nos. holes of 8 mm each on square pitch) inside the Reactor.



Modified system

M/S Snamprogetti, Italy (technology supplier for Urea Plant) have developed a new modified tray design for Reactor. Installation of these modified trays have further improved plug flow and reduced back mixing in the reactor and so conversion of Ammonium Carbamate to Urea in the Reactor is enhanced. With the existing 10 Nos. of trays, 05 Nos. of additional trays have been provided at bottom of vessel. With the installation of modified design tray, conversion efficiency in Reactor has increased and saving of around 30 kgs of

medium pressure steam (24 ata.) per MT of Urea produced has been achieved. Material of construction of new trays is 2-RE-69, which is more corrosion resistant and shall have more life as compared to SS 316 LM material used for conventional trays.

Installation of modified trays in Urea reactor of 31 & 41 units of Urea Plant

Due to advancement in technology and current fertiliser scenario, it was necessary to upgrade the plant equipments to reduce energy consumption. With these objectives in mind, IFFCO Aonla-I had modified the old Reactor trays of 31 & 41 units of Urea Plant-II with new design trays.

M/S Snamprogetti, Italy (technology supplier for Urea Plant) have developed a new modified tray design for Reactor. Installation of these modified trays have further improved plug flow and reduced back mixing in the reactor and so conversion of Ammonium Carbamate to Urea in the Reactor is enhanced. 05 Nos. additional trays with 1922 Nos. of holes have been installed at bottom of the reactor. With the installation of modified design tray, conversion efficiency in Reactor has increased and saving of around 30 kgs of medium pressure steam (24 ata.) per MT of produced has been achieved. Material of construction of new trays is 2-RE-69, which is more corrosion resistant and shall have more life as compared to SS 316 LM material used for conventional trays.

Agency that executed the project (with complete address and email):			
Basic Engineering	M/s Snam progetti Italy		
Detailed Engineering	M/s PDIL, PDIL BHAWAN, A-14, SECTOR-1, NOIDA- 201301 DISTT: GAUTAM BUDH NAGAR (U. P.) Email: rssahay@pdil.nic.in		
Total investment, Rs. 80 Lakh	Year of implementation: 2007-08		
First year energy cost savings, Rs. 212.36 Lakh			
First year other savings Rs.			
On annual basis			
Reduction in sp. energy consumption (MKcal/MT Urea)=A	0.0075		
Annual Capacity of Urea Plant (MT)=B	864600		
Energy Saving (MKcal) = AXB	6485		
Energy tariff, Rs/MKcal	3275		
Company complete address:	We authorise Bureau to use this		

<p>IFFCO Aonla-II P. O. IFFCO Township Bareilly (U. P.)-243403 Contact person who could be contracted for more information: A. K. Singh, Senior General Manager</p>	<p>information for dissemination</p> <p>Signature</p> <p>Date</p>
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Energy Conservation Measure implemented in 2007-08

ID	Title of the measure	Sector: Fertilisers
Year	2. Replacement of conventional ballast of fluroscent tubelights with electronics ballast	Technology: Steam Reforming of Natural Gas

We were using conventional electromagnetic ballast for fluorescent tube light fixtures (4 feet , 36 w) . However, there had been rapid development in the field of illumination system in the recent past. Energy efficient Electronic ballast with longer average life & less power losses were introduced. To save energy as well by reducing losses in the system, the existing conventional electromagnetic ballast were replaced with electronic ballast in phase manner. This has resulted to following benefits:

- 1 Earlier energy consumption due to conventional electromagnetic ballast for fluorescent tube fittings (4 feet , 36 W) was 22338 KWH. Now this has reduced to 11000 KWH due to replacement of 370 ballasts.

- 2 To compensate flickering effect, electronic ballast were fixed in place of conventional ballast in existing fittings

Agency that executed the project (with complete address and email): Inhouse				
Total investment, Rs 0.20 Lakh		Year of implementation: 2007-08		
First year energy cost savings, Rs. 0.1776 Lakh				
First year other savings Rs.				
On annual basis	MWH			
Power consumption before	22.338			
Power consumption after	11.000			
Energy tariff, Rs/MWH	1560			
Company complete address: IFFCO Aonla-II P. O. IFFCO Township Bareilly (U. P.)-243403		We authorise Bureau to use this information for dissemination		
Contact person who could be contracted for more information: A. K. Singh, Senior General Manager				
		Signature Date		