

*Let's wake up to
the new year of
growth & prosperity*

Domestic Scenario - Latest Production

(figures in million tonnes)

Period	Urea	DAP	N	P ₂ O ₅
November '08	1.620	0.430	0.950	0.430
November '07	1.780	0.410	0.970	0.340
April ' 08 - November '08	13.280	2.230	7.350	2.470
April ' 07 - November '07	13.110	2.910	7.300	2.630

Urea production during November, 2008, was down by 8.99% compared to that in November, 2007. However cumulatively, it was higher by 1.28%, up at 13.280mn mt compared to 13.110mn mt produced during same period last year.

DAP production registered higher increments, up by 4.65% in November, 2008 to that produced in November, 2007. Cumulatively, it was significantly down by 23.37% compared to same period last year.

Production of N during November, 2008 was 0.950mn mt compared to 0.970mn mt in November, 2007. Cumulatively it stood at 7.350mn mt compared to 7.300mn mt same period last year.

P2O5 wise, production in November, 2008 was 0.430mn mt as compared to 0.340mn mt in November, 2007 and cumulatively at 2.470mn mt compared to 2.630mn mt recorded same period last year.

INDIAN SALES

Latest Indian Fertilizer Sales

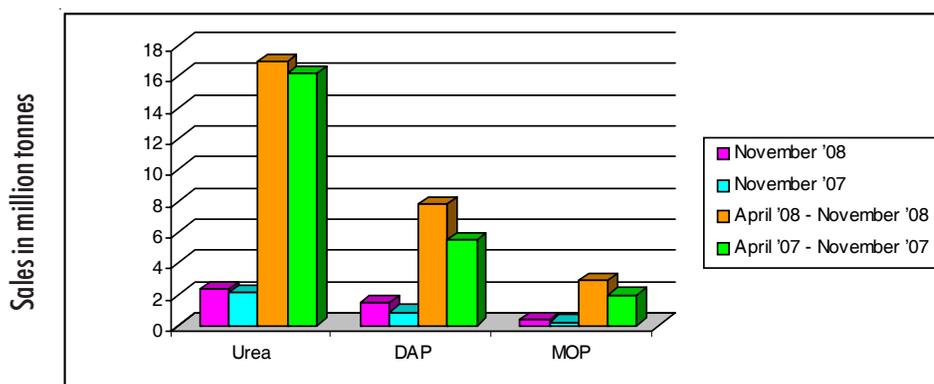
(figures in million tonnes)

Period	Urea	DAP	MOP
November '08	2.330	1.470	0.360
November '07	2.110	0.850	0.230
April '08 - November '08	16.960	7.810	2.900
April '07 - November '07	16.200	5.480	1.950

Urea sales during November, 2008, recorded a new high, 2.330mn mt, up by 9.44% compared to November, 2007. Cumulatively too, it was higher by 4.48%, up at 16.960mn mt compared to 16.200mn mt during April-November, 2007.

DAP wise too, sales increased by 42.18%, up at 1.470 mt compared to 0.850mn mt during November, 2007. Sales during April-November, 2008 were higher by 29.83% compared to that recorded during same period last year.

Sales of MOP too were higher by 36.11%, up at 0.360mn mt compared to 0.230mn mt in November, 2007. Cumulatively too, it was higher by 32.76%, up at 2.900mn mt compared to 1.950mn mt sold during same period last year.



Casale's most Recent Technologies for Grass-Roots Fertilizer Plants

(Following pages are taken from "Casale's most recent technologies for Grass-Roots Fertilizer Plants from Casale Group, Lugano-Switzerland- look out for the full text in your AFB, 2008 Edition)

FOREWORD

Ammonia Casale SA is one of the oldest companies active in synthetic ammonia production. Since it was established in 1921 in Lugano, Switzerland to develop and commercialize Dr Luigi Casale's process for the catalytic synthesis of ammonia, the company has continually been active in new ammonia plant construction, building over 200 such units worldwide. More recently the company has also expanded into the related fields of urea and methanol production, and it is now belonging to the Casale Group active in various fields, focused mainly on the development of technologies for the production of ammonia, urea and methanol. Casale's strength lies in technology licensing. Most of the technologies are developed in-house by a highly specialized and experienced team. Casale maintains the innovative trend set by its founder, and continues to invest significantly in new technology. Process design is supported by sound insight into the process chemistry, catalyst behaviour, kinetic data, heat and mass transfer phenomena, fluid mechanics, science of construction materials, and cost analysis.

Casale Technical Services employ specialists in all of these fields, and have sophisticated tools for investigating, analyzing and picturing complex phenomena. Process design is based on advanced computer-aided techniques with applications from process flow-sheeting to kinetics, to fluid dynamics simulations and mechanical stress analysis.

Over the past decades, Casale has been very active in revamping existing plants, including major modifications to key equipment. Casale's revamp strategy has always been to develop and

apply new, advanced technologies to obtain the best possible improvement in plant performance for minimum cost; with the aim of reducing energy consumption and/or increasing capacity. With the same objectives Casale has also developed, as a natural evolution of its revamping activity, new technologies for grass-roots ammonia and urea plants.

TECHNOLOGIES FOR GRASS-ROOTS AMMONIA PLANTS

Through its subsidiary Ammonia Casale, the Casale Group offers very efficient designs for grass-roots ammonia plants. For capacities up to 2,500-3,000 t/d, Casale offers its Improved Standard Process, while for larger plants Casale can offer its MEGAMMONIA® process.

The Casale Improved Standard Ammonia Process

The Casale Improved Standard Ammonia Process (CISAP) for natural gas-based ammonia plants is based on the classical steam reforming route. The main process steps are shown in Fig. 1.

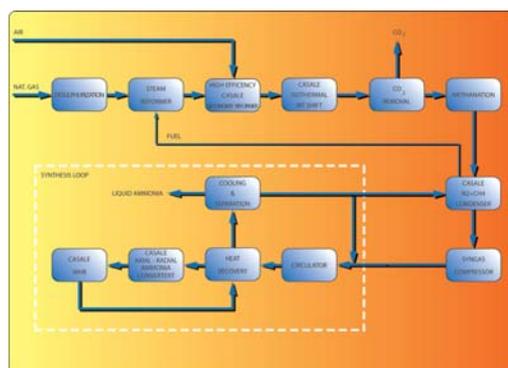


Fig. 1 – Casale "Improved" Standard Ammonia Process

CASALE GROUP

The CISAP process includes several innovative elements, including:

- Casale High Efficiency Design for the secondary reformer.
- Casale Axial-Radial Technology for the shift converter.
- Casale Ejector Ammonia Wash System.
- Casale Axial-Radial Technology for the ammonia converter.
- Casale Advanced Waste Heat Boiler design in the synthesis loop.

The Casale High Efficiency Secondary Reformer Design is based on the most advanced burner technology, developed using Casale's deep understanding of combustion and fluid dynamic phenomena to achieve very high combustion efficiency with low energy consumption. The Casale Advanced Secondary Reformer Burner offers superior mixing in the flame to achieve homogeneous gas composition and temperature distribution at the catalyst bed entrance. Reduced flame length avoids catalyst impingement and protects the refractory lining from the hot flame core. Burner surfaces are at lower temperatures, and there is a low pressure drop in both air and process streams.

Casale Axial-Radial Technology is used for the design of both the shift converters and the ammonia converter. In an axial-radial catalyst bed (see Fig. 2) most (90%) of the gas passes through the catalyst bed in a radial direction, resulting in very low pressure drop. The balance passes down through a top layer of catalyst in an axial direction, thus eliminating the need for a top cover on the catalyst bed.

Mechanically the bed is very simple, made of just two vertical perforated walls and a bottom closure plate. The absence of a top cover greatly simplifies construction of the converter internals.

The axial-radial concept brings the same advantages wherever it is applied in the ammonia plant, i.e.: low pressure drop and high efficiency due to the use of smaller-sized catalyst. These are important in minimizing equipment size and energy consumption.

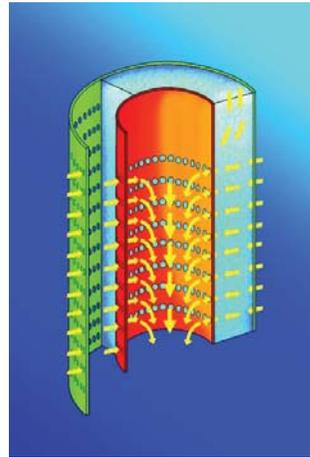


Fig. 2 - Axial-Radial Bed

Using axial-radial technology in both HT and LT shift converters also guarantees low average CO outlet concentration, high reliability and longer catalyst life thanks to both higher resistance to poisons and water carry over, and because the pressure drop across the unit remains stable throughout the catalyst's life.

Before entering the synthesis loop, the syngas is dried using the Casale Ejector Ammonia Wash System,

which uses liquid ammonia to dry the syngas. The wash system consists of a specially designed ejector which guarantees perfect contact between the liquid ammonia and the syngas, followed by a separator, and is therefore very simple and efficient, completely removing water and CO₂ from the syngas. This allows energy consumption of the refrigeration compressor to be minimized, as the syngas can be sent straight to the ammonia converter. It also minimizes the energy consumption of the circulator, as its suction temperature becomes very low.

The ammonia synthesis converter is also based on axial-radial technology. This is combined in the Casale Axial-Radial Ammonia Converter, with a three bed configuration, with two interchangers, to reach a very high thermodynamic efficiency and catalyst volume utilization. The conversion per pass is therefore maximized, minimizing energy consumption of the loop and the size of the loop equipment.

INTERNATIONAL SCENARIO

LATEST PRICE UPDATE

(prices in US Dollars)

Product	Origin	Spot prices in 'fob'			Last reported USD 'cfr' contracts	
		Present	Year Ago	Indian		
Ammonia	Yuzhny	60-125	↓	350-370	↑	
	Middle East	160	↓	308-335	↑	192.00
	Caribbean	85	↓	410-430	↑	
Ammonium Sulphate	cfr SE Asia	125-135	↓	230-265	↑	340.00
	Black Sea (Capro)	105-110	↓	255-260	↑	
	Baltic (Capro)	105-110	↓	245-250	↑	
DAP	US Gulf	500-510	↓	297-610	↑	420.00
	Tunisia	--		570	↑	
	Morocco	--		570	↑	
	Jordan	--		460-470	↑	
	US Gulf domestic (p.s.t.barge)	405-415	↓	540-545	↑	
	CIS	460-500	↓	600-605	↑	
	CIS	460-500	↓	580-585	↑	1270.00
MAP	CIS	460-500	↓	580-585	↑	1270.00
Phosphoric Acid (P ₂ O ₅) fertilizer grade		--		--		1200.00
Potash	Vancouver	825-925+	↑	130-155	↑	625.00 + 180d
	CIS	810-975+	↑	130-150	↑	
	Jordan	840-940+	↑	145-165	↑	
	Israel	840-920+	↑	145-165	↑	
	Vancouver	40-50	↓	190-350	↑	70.00
Sulphur	Saudi/UAE/Kuwait	35-60	↓	400+	↑	
	Iran	48-54	↓	354-497	↑	
	Baltic	225-230	↓	375-388	↑	249.00
Urea	Yuzhny	225-230	↓	380-385	↑	
	Bulg/Croatia/Rom	250-255	↓	415-420	↑	
	Arabian Gulf (prilled)	250-260	↓	400-410	↑	
	Arabian Gulf (granular)	175-260	↓	400-425	↑	
	Indonesia/Malaysia (granular)	245-255	↓	340-350	↑	

Price trends: (↑) Increase / (↓) Decrease / (↔) Similar vis-a-vis prices published in previous month IFSU.

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