LIST OF ENCLOSURES

S. No	Content	Annexure
1	CFE Copy	Enclosure -I
2	CFO Copy	Enclosure -II

ANDHRA PRADESH POLLUTION CONTROL BOARD
CONSENT ORDER

BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE

(Consent order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Act).

CONSENT is hereby granted under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974, (hereinafter referred to as "the Act") and the rules and orders made there under to M/s. MAHIDHARA CHEMICALS (P) LTD.,
18-D11, PHASE-I IDA
PATANCHERU
MEDAK DIST

* DISCHARGE EFFLUENTS AS DETAILED BELOW (hereinafter referred to as "the Applicant") authorising to operate the industrial plant to discharge the effluents from the following outlets as mentioned below.

Outlet No.	Description of outlet	Point of disposal
1	SANITARY EFFLUENTS	SEPTIC TANK FOLLOWED BY SOAK PIT.

This is subject to the provisions of the Act and the rules and orders made there-under and further subject to the terms and conditions incorporated in the Schedule

This CONSENT shall be valid for a period ending with the 29th day of February, 2000

for and on behalf of the
A.P.Pollution Control Board.

MEMBER SECRETARY

To MAHIDHARA CHEMICALS (P) LTD.,
18-D11, PHASE-I IDA
PATANCHERU
MEDAK DIST

Copy to Environmental Engineer
Regional Office SANGAREDDY for information and necessary action.
Copy to the Senior Environmental Engineer (cess cell) for information and necessary action.

SCHEDULE

No. C 24579/PCB/W/99 . 87C

Dt. June' 1999

TERMS AND CONDITIONS :

1 The applicant shall make an application for grant of fresh consent at least 30 days before the date of expiry of this consent.

2 The quantity of the effluent discharged shall not exceed the figures mentioned below :

Outlet No.	Maximum daily discharge lits/day
1	400.00

3 The applicant shall submit flow sheet and particulars of proposed treatment and disposal system and a time schedule for completing the treatment plant for treating the trade effluent as well as domestic sewage from the factory and colony so as to reach the Board by

4 Necessary fee, as prescribed for obtaining consent, shall be paid for by the applicant alongwith the consent application.

5 The Industry would immediately submit the revised application for consent to this Board in the event of any change in the trade effluent raw material used and processes employed.

6 The applicant shall not change or alter either the quality or the quantity or the rate of the discharge or temperature or the route of discharge without the previous written permission of the Board.

7 The effluent discharged shall not contain constituents in excess of the tolerance limits as laid down hereunder :

Sl. No.	Parameter	Limiting standards

THE INDUSTRY SHOULD NOT DISCHARGE ANY EFFLUENTS OUTSIDE THE FACTORY PREMISES.
THE INDUSTRY SHOULD DISPOSE OFF SOLID WASTE SAFELY.
INDUSTRY SHALL SUBMIT ENV. STATEMENT EVERY YEAR.

8 The applicant shall take immediate action to install or modify the treatment plant for treating the effluents to the satisfaction of the Board within the following time limits :

a) By so as to conform to tolerance limits item 7 above

TELANGANA STATE POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-3, Industrial Estate,
Sanathnagar, Hyderabad – 500018

Ph: 040-238875
Fax: 040- 238156
Website: appcb.ap.nic.

RENEWAL CONSENT & AUTHORISATION ORDER
BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE

Consent Order No : TSPCB/RCP/MDK/13166/CFO/HO/2014 309 **Date: 03.12.2014**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation / Renewal of Authorisation under Rule 5 of the Hazardous Wastes (Management & Handling) Rules 1989 & Amendment Rules).

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorisation under the provisions of HW (M & H) Rules (hereinafter referred to as 'the Acts', 'the Rules') and the rules and orders made thereunder to

M/s. Mahidhara Chemicals (P) Ltd.,
18-D II, IDA, Phase – I,
Patancheru,
Medak District
E-mail: info@mahidhara.com

(hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below.

i) Out lets for discharge of effluents:

Outlet No.	Outlet description	Max. Daily Discharge	Point of Disposal
1.	Trade effluents (Washings – 0.05 KLD + Boiler Blow down & Re-generation – 0.13 KLD + Domestic effluents after septic tank – 1.40 KLD*	1.58 KLD	• Forced Evaporation with in the premises. • The condensate first forerun to distillate for recovery of solvents at on site and reuse. • The secondary condensate to reuse for make-up.

** The industry should stop using the soak pits for final disposal of domestic effluents (1.40 KLD) with immediate effect and should force evaporate these effluents along with trade effluents in the existing FE system.*

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow
1.	Attached to Coal fired Boiler of 0.5 TPH capacity.	--
2.	Attached to Thermic Fluid heaters of 3 X 2 Lakh K.Cal / hr Capacity	--
3.	Stack attached to 250 KVA + 125 KVA + 82.5 KVA DG sets	--

iii) HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 5 (4)]

1. Number of Authorization and date of issue - TSPCB/RCP/MDK/13166/CFO/HO/2014- Date: .12.2014
2. M/s. Mahidhara Chemicals Pvt. Ltd., 18-D II, Phase – I, IDA, Patancheru, Medak District., is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

S. No.	Name of the Hazardous waste	Stream	Quantity of Hazardous waste	Disposal option
1.	Floor sweepings with spillages	34.6 of Schedule – I	300 kgs / month	TSDF, Dundigal, Rangareddy District for incineration.

2.	Forced Evaporation Salts	34.3 of Schedule – I	8 Tons / month	TSDF, Dundigal, Rangareddy District for secured land filling.

- **HAZARDOUS WASTES WITH RECYCLING OPTION:**

S. No.	Name of the Hazardous waste	Stream	Quantity of Hazardous waste	Disposal option
1.	Grease, oil filters and cotton	5.1 of Schedule – I	200 kgs / year	TSDF, Dundigal, Rangareddy District for incineration/ Authorized cement plants for co-processing.
2.	Waste Mineral Oils	5.1 of Schedule – I	320 Lts / Year	Authorized Reprocessors / Recyclers.
3.	Containers & container Liners of Hazardous waste and Chemicals	33.3 of Schedule – I	250 Drums / Month	After detoxification, it should be disposed to the outside agencies.
4.	Aluminum foils	21 of Schedule – IV	200 kgs / year	Authorized Re-processors.

This consent order is valid for manufacturing the following products along with quantities.

S.No	Products	Quantity
1.	Sodium Hydride (Dispersion)	15.0 TPM
2.	Sodium Amide	5.0 TPM
3.	Sodium Tertiary Butoxide / Potassium Tertiary Butoxide	300.0 kg/day
4.	N – Ethyl Piperzine	15.0 TPM

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization should be valid for a period ending with the **28th Day of February, 2017.**

Sd/-
MEMBER SECRETARY

To
M/s. Mahidhara Chemicals (P) Ltd.,
18-D II, IDA, Phase – I,
Patancheru,
Medak District

//T.C.F.B.O//

SENIOR ENVIRONMENTAL ENGINEER

SCHEDULE – A

All the conditions stipulated in the Schedule – A of the earlier combined **CFO & HWA order No. APPCB/RCP/RCP/96/CFO/HO/2008–1015, dated. 10.07.2008** remains same. The industry should ensure consistent compliance of each condition of Schedule-A.

SCHEDULE - B

Special Conditions

1. The industry should take steps to reduce water consumption to the extent possible and consumption should NOT exceed the quantities mentioned below:

S.No.	Purpose	Quantity
1.	Washings	0.05 KLD
2.	Boiler Blow Down & Re-generation	0.13 KLD
3.	Domestic Wastewater	1.8 KLD
	Total:	**1.98 KLD**

2. The industry should file the water Cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the **5th of every calendar month**, showing the quantity of water consumed in the previous month along with water meter readings. The industry should remit water Cess as per the assessment orders as and when issued by Board.
3. The emissions should not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Parameter	Emission Standards
1 & 2	Particulate Matter	115 mg/Nm^3

4. The industry should comply with emission limits for DG sets upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets more than 800 KW should comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986..
5. The industry should comply with ambient air quality standards of PM_{10} (Particulate Matter size less than 10 μm) - 100 μg/ m^3; $PM_{2.5}$(Particulate Matter size less than 2.5 μm) - 60 μg/ m^3; SO_2 - 80 μg/ m^3; NO_x - 80 μg/m^3, outside the factory premises at the periphery of the industry.

   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

   Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
   Night time (10 PM to 6 AM) - 70 dB (A).
6. The industry should not increase the capacity beyond the permitted capacity mentioned in this order, without obtaining CFE & CFO of the Board.
7. The industry shall install digital flow meters for recording the effluent generation.
8. The industry shall operate the dedicated PP / FRP scrubbers regularly and the scrubbed ammonia emissions shall be connected to the process systems and shall not vent out ammonia. The industry should not cause any air pollution / dust nuisance to the surrounding environment.
9. The industry should regularly update the risk assessment report and furnish details to RO, Sangareddy-I.
10. The industry should reuse the condensate from FE system and should provide flow meter to quantify the condensate reused within the premises.
11. The industry should evaporate the domestic effluents (1.4 KLD) along with process effluents in the existing evaporation system.
12. The industry should install and operate the scrubbers to scrub process emissions at all emission sources. The details of chemicals consumption used in the scrubber should be recorded & kept accessible for the inspecting officials of the Board.
13. The industry should maintain the following records and the same should be made available to the Board Officials during the inspection.
    a. Daily production details, RG-I records and Central Excise Returns.
    b. Quantity of Effluents generated and forced evaporated.
    c. Log Books for pollution control systems.
    d. Daily solid waste generated and disposed to TSDF.
14. Under no circumstances, the Hazardous Waste should be burnt in the boiler.
15. The industry should evaluate the performance of solvent recovery system for each stream-wise and should furnish plan of action to maintain the efficiency of solvent recovery more than 95% for every stream.

16. The industry should maintain elevated lined platform with dyke wall and leachate collection sump for storage of solvent drums, raw material drums and waste drums etc.
17. There should not be any spillages / discharges of chemicals / effluents on ground. The drums containing chemicals & wastes should be stored on elevated platform provided with leachate / spillages collection pit. In no case the drums should be stored on naked ground.
18. The industry should take all safety measures and provide fire fighting equipment in the plant.
19. The industry should not discharge any wastewater outside the factory premises and maintain zero discharge of effluents.
20. Thick green belt should be developed & maintained by the industry with tall growing trees in the vacant spaces of the unit.
21. The industry should submit mock drill report carried out at least once in **six months**, as required under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
22. The industry should monitor AAQM where maximum GLCs are expected.
23. The industry should regularly carryout the monitoring of environmental parameters, audit them & should submit report to the Board **twice in a calendar year.**
24. The applicant should submit Environment statement in Form V before 30th September of every year as per Rule No.14 of E (P) Rules, 1986 & amendments.
25. The industry should take necessary safety measures during the handling of sodium

SCHEDULE - C
[see rule 3(c) and 5(5)]
[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The industry should give top priority for waste minimization and cleaner production practices.
2. The industry should not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management. Handling and Transboundary Movement) Rules, 2008 and amendments thereof.
3. The industry should store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
4. The industry should not dispose Waste oils to the traders and the same should be disposed to the authorized Reprocessors/ Recyclers.
5. The industry should dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
6. The industry should not dispose spent solvents / mixed spent solvents to the traders.
7. The industry should take necessary practical steps for prevention of oil spillages and carry over of oil from the premises.
8. The industry should maintain 6 copy manifest system for transportation of waste generated and a copy should be submitted to Board Office and concerned Regional Office.
9. The industry should maintain good house keeping & maintain proper records for Hazardous Wastes stated in Authorisation.
10. The industry should maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and amendments thereof.
11. The industry should submit the condition wise compliance report of the conditions stipulated in Schedule A, B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.
12. The industry should dispose of e-waste to the authorized recyclers only.

Sd/

MEMBER SECRETARY

To
M/s. Mahidhara Chemicals (P) Ltd.,
18-D II, IDA, Phase – I,
Patancheru,
Medak District

//T.C.F.B.O//

B. Murthy

SENIOR ENVIRONMENTAL ENGINEER

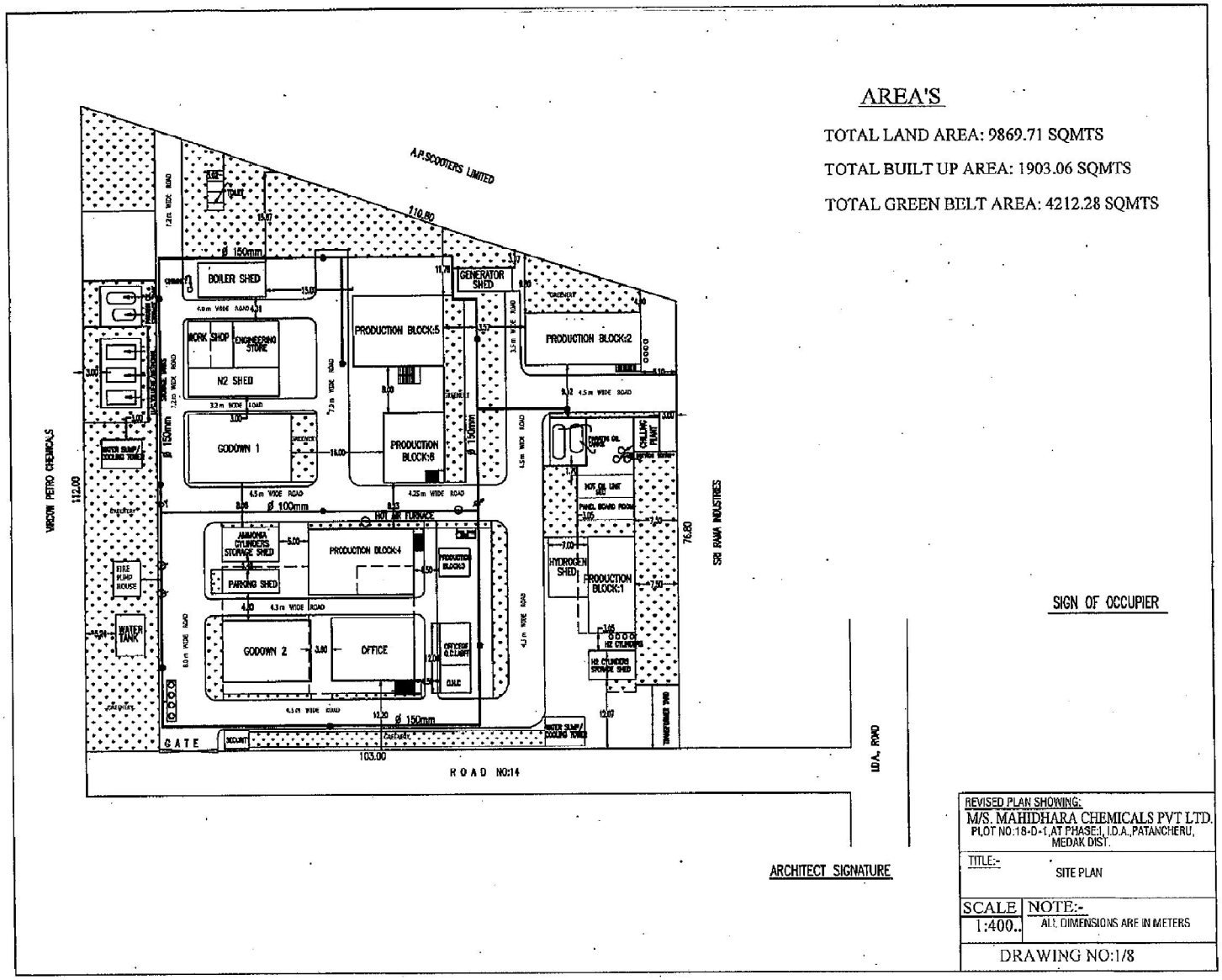
S. No	Content	Annexure
1	List of Products	Annexure-I
2	Site Plan	Annexure-II
3	Manufaturing Process Description	Annexure-III
4	Water Consumption Details	Annexure-IV
5	Solid waste &Hazardous waste	Annexure-V
6	Stack Emission Details	Annexure-VI
7	Process Emission Details	Annexure-VII
8	List of Raw Materials	Annexure- VIII
9	Waste water Details	Annexure-IX

ANNEXURE - I

LIST OF PROPOSED PRODUCTS

S. No.	Product Name	Production	
		Kgs/Month	Kgs/Day
	Group-A		
1	Lithium Methoxide	1000.00	33.33
2	Lithium Tertiary Butoxide	1000.00	33.33
3	lithium amide	10000.00	333.33
4	magnesium methoxide	2000.00	66.67
5	magnesium Tertiary butoxide	10000.00	333.33
6	N-Butyl lithium	5000.00	166.67
7	Potassium Tertiary Butoxide	5000.00	166.67
8	Sodium amide	30000.00	1000.00
9	Sodium hydride	50000.00	1666.67
10	Sodium tertiary Butoxide	30000.00	1000.00
	Total(Sum of all products)	**144000.00**	**4800.00**
	Group-B		
1	Lithium HMDS	30000.00	1000.00
2	Potassium HMDS	30000.00	1000.00
3	Sodium HMDS	30000.00	1000.00
	Total(Sum of all products or single product)	**30000.00**	**1000.00**
	Group-C		
1	Benzyl Magnesium Chloride	40000.00	1333.33
2	Butyl Magnesium chloride	40000.00	1333.33
3	ethyl Magnesium bromide	40000.00	1333.33
4	Ethyl Magnesium chloride	40000.00	1333.33
5	Methyl Magnesium chloride	40000.00	1333.33
6	Phenyl Magnesium chloride	40000.00	1333.33
7	Secondary Butyl Magnesium chloride	40000.00	1333.33
	Total(Sum of all products or single product)	**40000.00**	**1333.33**
	Total (Sum of Group-A &Group-B& Group-C)	**214000.00**	**7133.33**

Annexure - II


AREA'S
TOTAL LAND AREA: 9869.71 SQMTS
TOTAL BUILT UP AREA: 1903.06 SQMTS
TOTAL GREEN BELT AREA: 4212.28 SQMTS
A.P.SCOOTERS LIMITED
110.80
VARDHAN PETRO CHEMICALS
112.00
SRI RAMA INDUSTRIES
76.80
BOILER SHED
GENERATOR SHED
WORK SHOP
ENGINEERING STORE
N2 SHED
GODOWN 1
PRODUCTION BLOCK:5
PRODUCTION BLOCK:2
PRODUCTION BLOCK:6
HOT AIR FURNACE
AMMONIA CYLINDERS STORAGE SHED
PARKING SHED
PRODUCTION BLOCK:4
HYDROGEN SHED
PRODUCTION BLOCK:1
FIRE PUMP HOUSE
WATER TANK
GODOWN 2
OFFICE
GATE
103.00
ROAD NO:14
I.D.A. ROAD
SIGN OF OCCUPIER
ARCHITECT SIGNATURE
REVISED PLAN SHOWING:
M/S. MAHIDHARA CHEMICALS PVT LTD.
PLOT NO:18-D-1,AT PHASE:I, I.D.A.,PATANCHERU, MEDAK DIST.
TITLE:-
SITE PLAN
SCALE
1:400..
NOTE:-
ALL DIMENSIONS ARE IN METERS
DRAWING NO:1/8

Annexure – III

1. LITHIUM METHOXIDE

Process Description

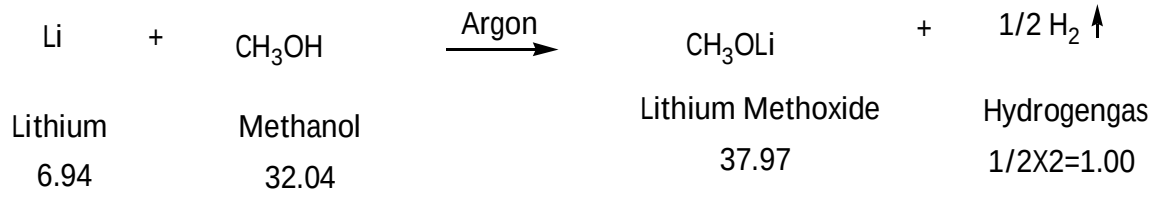
Stage-1

Lithium metal is added with excess methyl alcohol contained rotary dryer cum reactor under argon atmosphere. Excess methanol is recovered by thermic fluid heating through a condenser and used again in the next batches. A small quantity of hydrogen is getting out through a liquid paraffin trap.

LITHIUM METHOXIDE

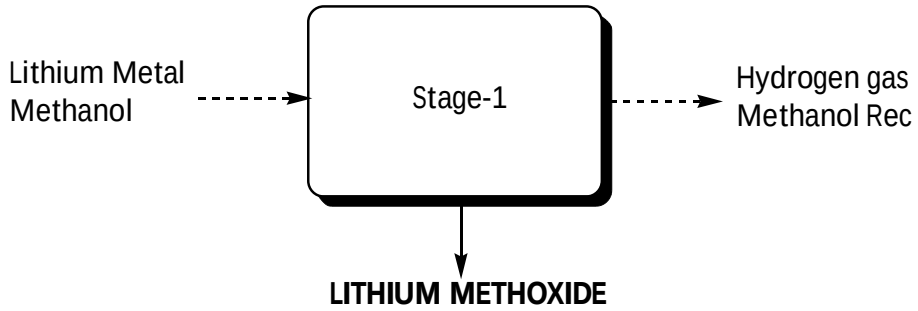
Route of Synthesis

Stage-1



LITHIUM METHOXIDE

Flow Chart



LITHIUM METHOXIDE

Material Balance:

Material Balance of Lithium Methoxide Stage-1 Batch Size: 250.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Lithium metal	46.00		Lithium Methoxide	250.00
Methanol	550.00		Methanol Recovery	321.08
			Methanol Loss	17.00
			Process Emission	7.92
			(Hydrogen-7.92)	
Total	596.00		Total	596.00

2. LITHIUM TERT-BUTOXIDE

Process Description

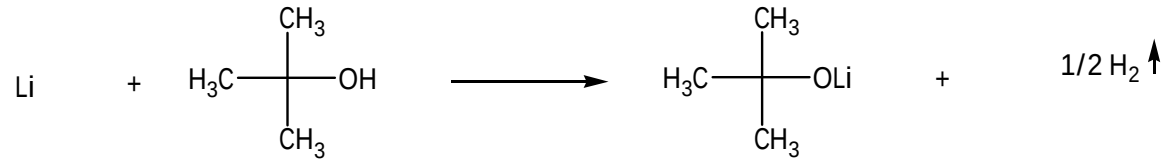
Stage-1

Lithium metal is added with excess tert-butanol contained rotary dryer cum reactor under argon atmosphere. Excess tert-butanol is recovered by thermic fluid heating through a condenser and used again in the next batches. A small quantity of hydrogen is let out through a liquid paraffin trap.

LITHIUM TERT-BUTOXIDE

Route of Synthesis

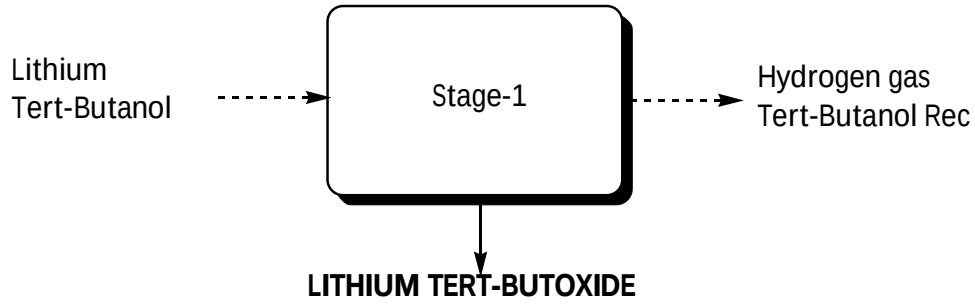
Stage-1



Lithium	Tert-Butanol	Lithium tert-butoxide	Hydrogen gas
6.94	$C_4H_{10}O$	C_4H_9LiO	1/2X2=1.00
	74.12	80.05	

LITHIUM TERT-BUTOXIDE

Flow Chart



LITHIUM TERT-BUTOXIDE

Material Balance:

Material Balance of Lithium Tert-Butoxide Stage-1 Batch Size: 250.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Lithium	28.00		Lithium Tert-Butoxide	250.00
Tert-Butanol	325.00		Tert Butanol Recovery	94.00
			Tert-butanol Loss	5.00
			Process Emissions	4.00
			(Hydrogen-4)	
Total	353.00		Total	353.00

3. LITHIUM AMIDE

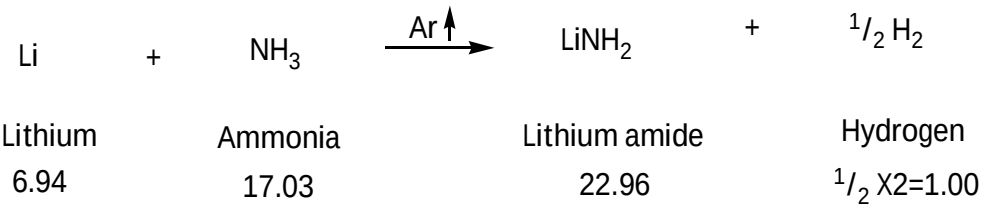
Process Description:

Stage-1

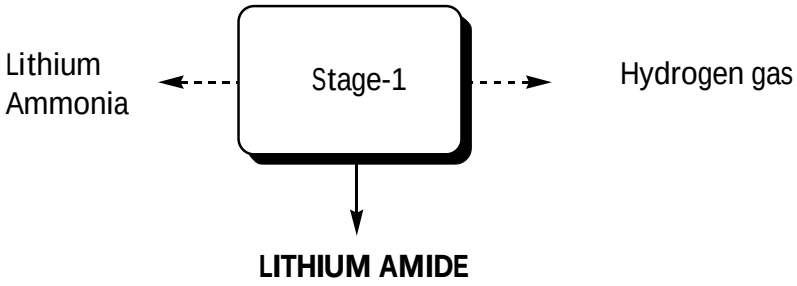
Required quantity of lithium metal is charged into a clean and dry reactor under argon purging. Raise the reactor temparature upto required, start and continue the ammonia gas passing and liberated hydrogen gas is flared continuously up to end of the reaction. The mass is unloaded into a ballmill and powdered. Check the sample and unload the material into polythene bags and kept in MS drums under nitrogen atmosphere

Route of synthesis:

Stage-1:



Flow Chart:



LITHIUM AMIDE

Material Balance:

Material Balance of Lithium amide Stage-1 Batch Size: 500.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Lithium	150.00		Lithiumamide	500.00
Ammonia	372.30		Process Emission	22.30
			(Hydrogen-22.3)	
Total	522.30		Total	522.30

4. MAGNESIUM METHOXIDE

Process Description

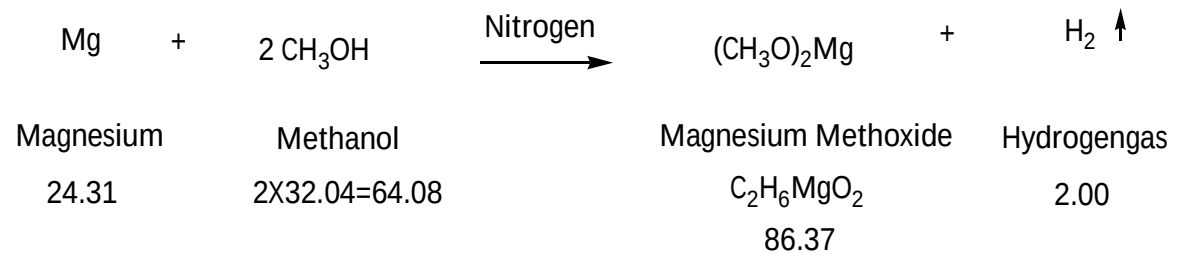
Stage-1

Magnesium metal is added with excess methyl alcohol contained rotary dryer cum reactor under nitrogen atmosphere. Excess methanol is recovered by thermic fluid heating through a condenser and used again in the next batches. A small quantity of hydrogen is let out through a liquid paraffin trap.

MAGNESIUM METHOXIDE

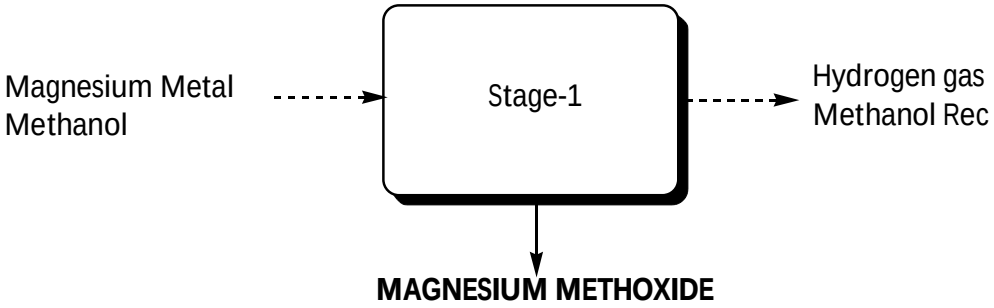
Route of Synthesis

Stage-1



MAGNESIUM METHOXIDE

Flow Chart



MAGNESIUM METHOXIDE

Material Balance:

Material Balance of Magnesium Methoxide Stage-1 Batch Size: 100.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Magnesium Metal	30.00		Magnesium Methoxide	100.00
Methanol	594.00		Methanol Recovery	494.89
			Methanol Loss	26.65
			Process emissions	2.46
			(Hydrogen)	
Total	624.00		Total	624.00

5. MAGNESIUM TERTIARY BUTOXIDE

Process Description

Stage-1

2 moles of Methyl Magnesium Chloride in THF are reacted under certain conditions to form Di methyl Magnesium and Magnesium Chloride.

Stage-2

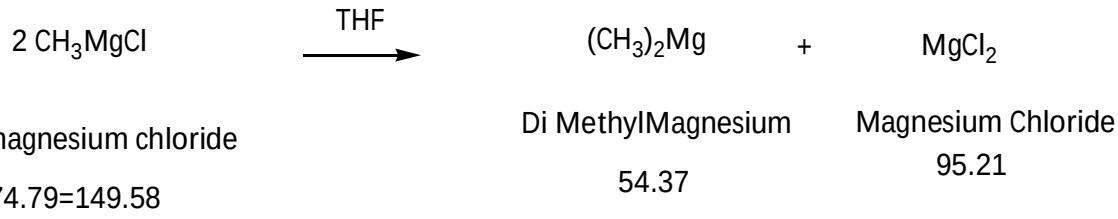
Di methyl Magnesium in THF is reacted with Tertiary Butanol to get Magnesium Tertiary Butoxide. The Magnesium Tertiary Butoxide solution in THF is taken into a dryer and

THF is recovered and used in next batches. The dried product is packed in polythene bags and kept in MS drums.

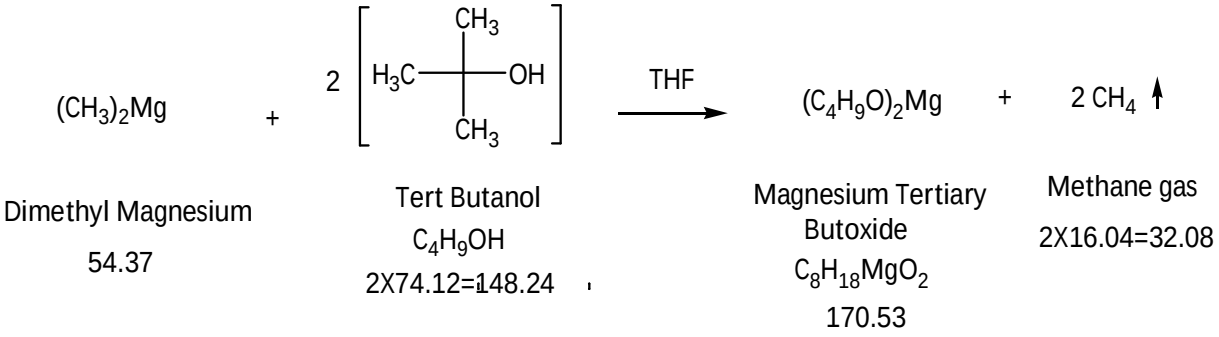
MAGNESIUM TERTIARY BUTOXIDE

Route of Synthesis

Stage-1

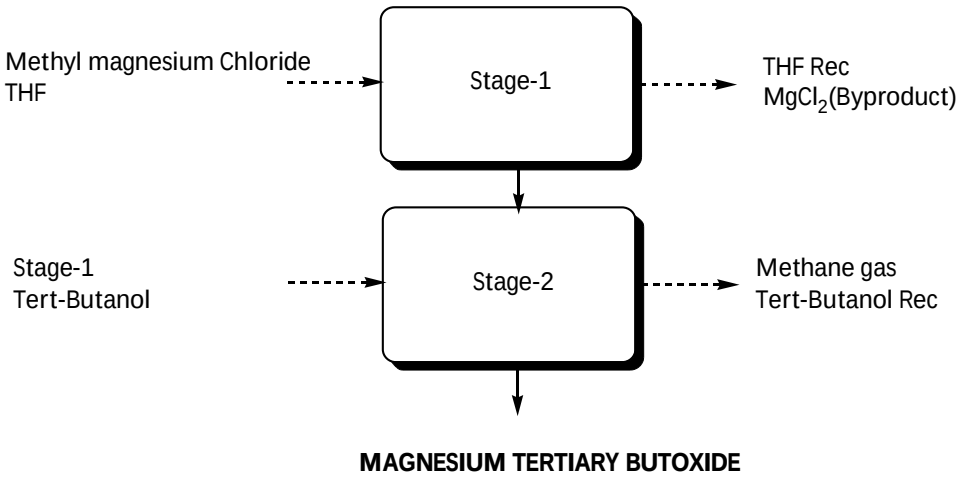


Stage-2



MAGNESIUM TERTIARY BUTOXIDE

Flow Chart



MAGNESIUM TERTIARY BUTOXIDE

Material Balance:

Material Balance of Magnesium Tertiary Butoxide Stage-1 Batch Size:200.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Methyl Magnesium Chloride	214.00		Stage-1+ THF	1400.00
THF	1400.00		THF Loss	70.00
			By-product	144.00
			(Magnesium chloride-144)	
Total	1614.00		Total	1614.00

Material Balance of Magnesium Tertiary Butoxide Stage-2 Batch Size: 200.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Stage-1 + THF	1400.00		Magnesium Tertiary Butoxide	200.00
Tert-Butanol	300.00		THF Recovery	1334.00
			Tert butanol Recovery	119.00
			Tert butanol Loss	6.00
			Process Emission	41.00
			(Methane gas-41.0)	
Total	1700.00		Total	1700.00

6. N-BUTYL LITHIUM

Process Description

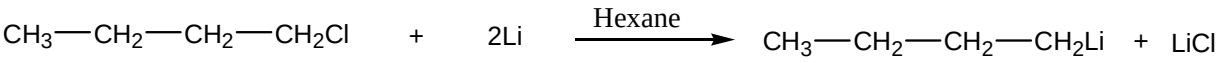
Stage-1

N-Butyl chloride reacts with Lithium in presence of Hexane to give N-Butyl Lithium and Lithium chloride as a by-product.

N-BUTYL LITHIUM

Route of Synthesis:

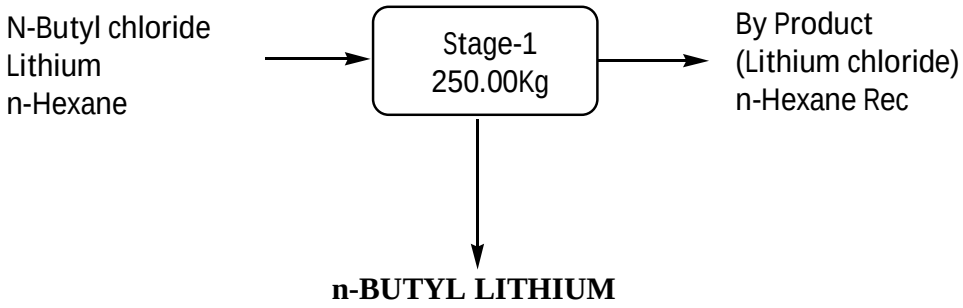
Stage-1



n-Butyl chloride C_4H_9Cl	Lithium	n-Buytl lithium C_4H_9Li	Lithium chloirde
92.57	2x6.94=13.88	64.06	42.39

N-BUTYL LITHIUM

Flow-Chart:



N-BUTYL LITHIUM

Material Balance:

Material Balance of N-Butyl Lithium Stage-1 Batch Size: 50.0Kg (100% basis)				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
N-Butyl chloride	80.00		N-Butyl Lithium In Hexane (20%)	250.00
Lithium	12.00		Hexane Loss	10.00
Hexane	205.00		**By-Product**	37.00
			(Lithium Chloride)	
Total	297.00		Total	297.00

7. POTASSIUM TERTIARY BUTOXIDE

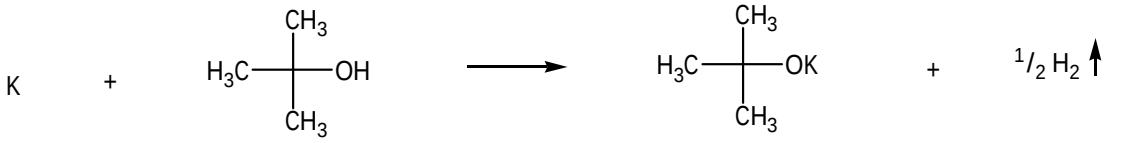
Process Description:

Stage-1

Potassium is added into excess tert-Butanol in a rotatory drier cum reactor. Excess t-Butanol is used to ensure the complete reaction of the corresponding metals. Then the excess t-Butanol is recovered by thermic fluid heating through a condensor and used again in the next batches. A small quantity of hydrogen is let out through a liquid paraffin trap.

Route of synthesis:

Stage-1:



Potassium
39.10

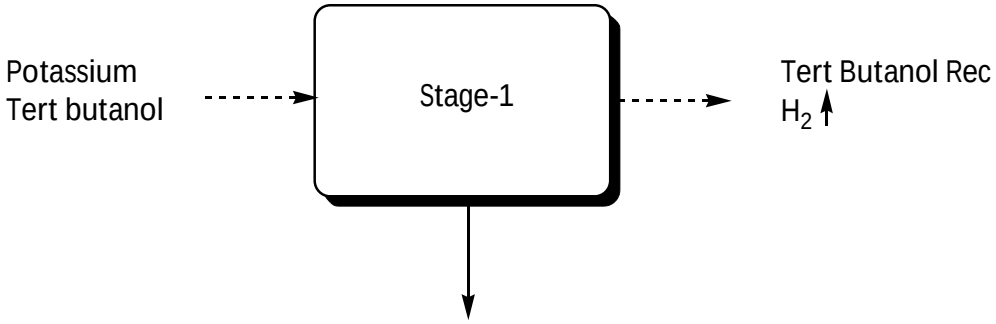
Tertiary butanol
$C_4H_{10}O$
74.12

Potassium tertiary butoxide
C_4H_9KO
112.21

Hydrogen
$^1/_2$ X 2=1.00

POTASSIUM TERT BUTOXIDE

Flowchart :



POTASSIUM TERT BUTOXIDE

Material Balance:

Material Balance of Potassium tert butoxide Stage-1 Batch Size: 500.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Potassium	185.20		Potassium tert-butoxide	500.00
Tert butanol	641.42		Tert butanol Recovery	301.98
			Tert butanol Loss	15.90
			Process Emission	8.74
			(Hydrogen-8.74)	
Total	826.62		Total	826.62

8. SODIUM AMIDE

Process Description

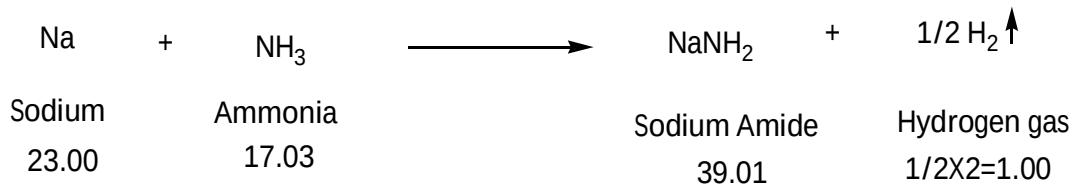
Stage-1

Sodium metal is charged into a reactor and the temperature is maintained at 300^{O}C - 350^{o}C.Then ammonia gas is passed into the reactor. During the reaction, Hydrogen is liberated. This liberated hydrogen can be used in sodium hydride product. When the reaction is completed, the mass is unloaded into a ball mill and powdered. The powder is packed in polythene bags under Nitrogen atmosphere as per the requirement of the customers and kept in drums.

SODIUM AMIDE

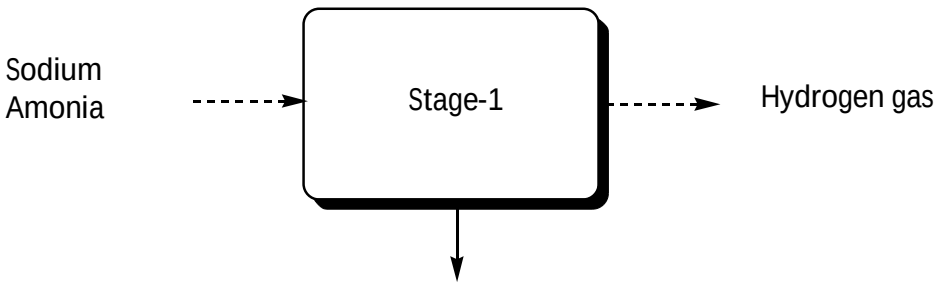
Route of Synthesis

Stage-1



SODIUM AMIDE

Flow Chart



SODIUM AMIDE

SODIUM AMIDE

Material Balance:

Material Balance of Sodium Amide Stage-1 Batch Size: 500.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Sodium	310.00		Sodium Amide	500.00
Ammonia	203.38		Process Emissions	13.38
			(Hydrogen-13.38)	
Total	513.38		Total	513.38

9. SODIUM HYDRIDE

Process Description

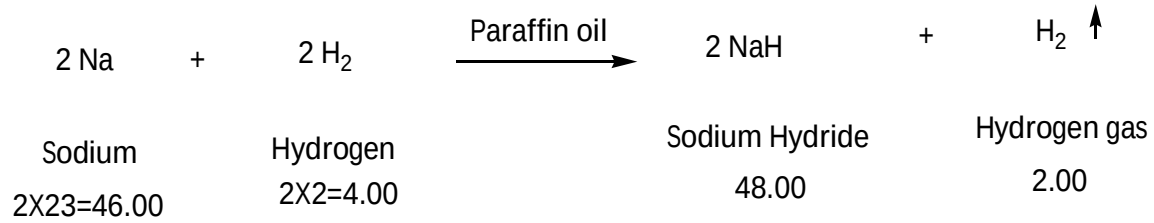
Stage-1

Sodium is heated to a temperature of around 180^0-250^0C in a SS Reactor containing Mineral oil under nitrogen atmosphere. The heating of the reactor is done with thermic fluid .Once the required temperature is attained Hydrogen gas is passed into the reactor from the cylinders by using a two stage pressure regulator at the cylinder .When the reaction is completed ,the sodium hydride dispersion in oil is cooled and unloaded into a receiver and filtered to 65 % then it is packed in polyethylene bags under nitrogen atmosphere and kept in MS drums /HDPE Drums

SODIUM HYDRIDE

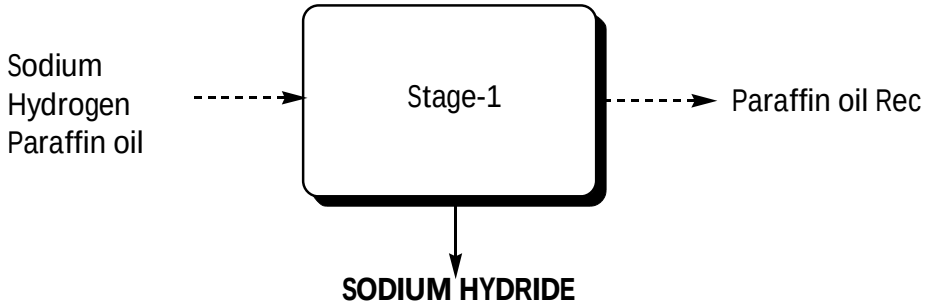
Route of Synthesis:

Stage-1



SODIUM HYDRIDE

Flow Chart



SODIUM HYDRIDE

Material Balance:

Material Balance of Sodium Hydride Stage-1 Batch Size: 1000.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Sodium	649.00		Sodium Hydride in paraffin oil	1661.00
Hydrogen	29.00		Process Emission	14.45
Paraffin oil	997.45		(Hydrogen-14.45)	
Total	1675.45		Total	1675.45

10. SODIUM TERT BUTOXIDE

Process Description

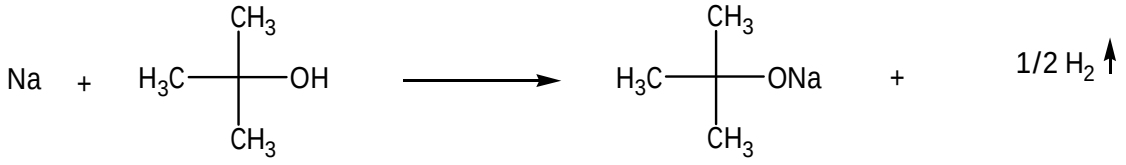
Stage-1

Sodium is added into excess tert-butanol in a rotary drier cum reactor. Excess Tert-Butanol is used to ensure the complete reaction of the corresponding metals. Then the excess Tert-Butanol is recovered by thermic fluid heating through a condensor and used again in the next batches. A small quantity of hydrogen is let out through a liquid paraffin trap.

SODIUM TERT BUTOXIDE

Route of Synthesis

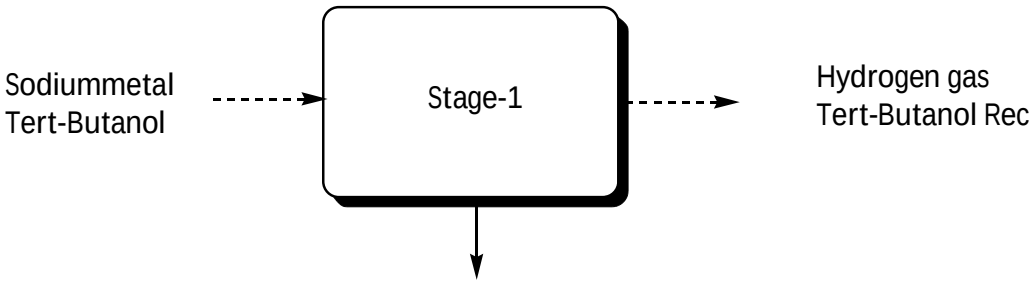
Stage-1:



Sodium metal	Tert-Butanol	Sodium tert-butoxide	Hydrogen gas
22.99	$C_4H_{10}O$	C_4H_9ONa	1/2X2=1.00
	74.12	96.10	

SODIUM TERT BUTOXIDE

Flow Chart:



SODIUM TERT BUTOXIDE

Material Balance:

Material Balance of Sodium tert-Butoxide Stage-1 Batch Size:500.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Sodium	141.18		Sodium tert-Butoxide	500.00
Tert-Butanol	650.00		t-Butanol Recovery	271.25
			t-Butanol Loss	15.48
			Process Emission	4.45
			(Hydrogen-4.45)	
Total	791.18		Total	791.18

Group-B

1. LITHIUM HMDS

Process Description

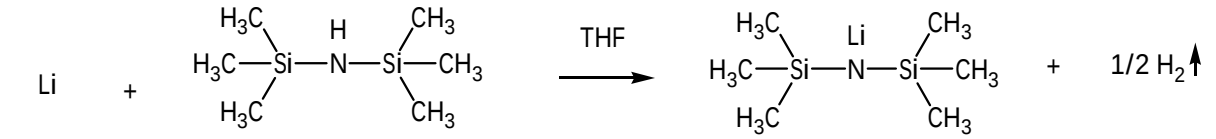
Stage-1

Required quantity of lithium metal is charged into a clean and dry reactor under argon purging. Charge THF and start stirring. Raise the reactor temparature upto reflux, start and continue the addition of HMDS under reflux. Maintain the reflux for few hours and cool to room temparature. Check the Product and unload the material into the containers under argon/nitrogen atmosphere.

LITHIUM HMDS

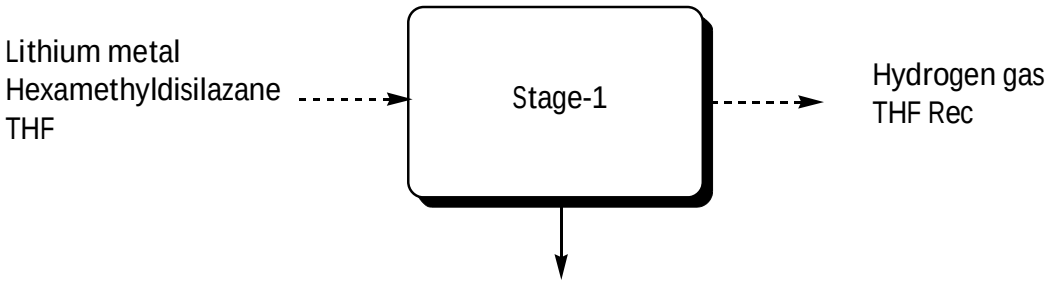
Route of Synthesis:

Stage-1:



Lithium	Hexamethyldisilazane	Lithium HMDS	Hydrogen gas
6.94	$C_6H_{19}NSi_2$	$C_6H_{18}LiNSi_2$	1/2X2=1.0
	161.39	167.33	0

LITHIUM HMDS



LITHIUM HMDS

Material Balance of Lithium HMDS Stage-1 Batch Size: 500.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Lithium metal	19.00		Lithium HMDS in THF Solution	976.00
HMDS	483.00		THF Loss	25.00
THF	500.00		Process Emissions	1.00
			(Hydrogen-1)	
Total	1002.00		Total	1002.00

2. POTASSIUM HMDS

Process Description

Stage-1

Required quantity of potassium metal is charged into a clean and dry reactor under nitrogen purging. Charge THF and start stirring. Raise the reactor temparature upto reflux, start and continue the addition of HMDS under reflux. Maintain the reflux for few hours and cool to room temparature. Check the product and unload the material into the containers under nitrogen atmosphere.

POTASSIUM HMDS

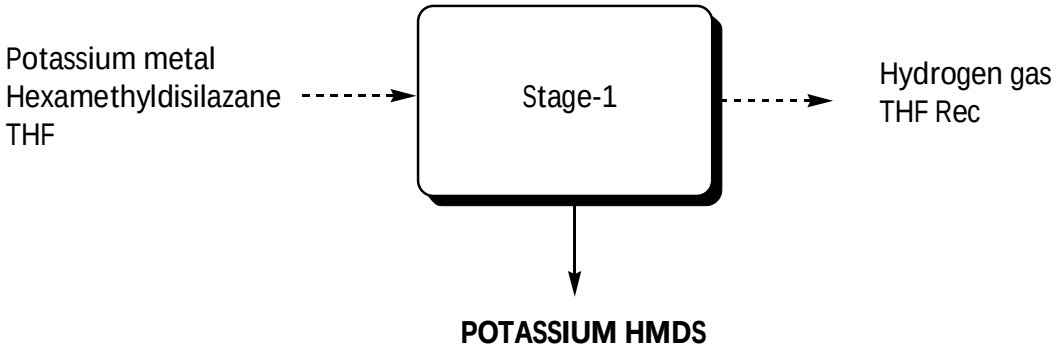
Route of Synthesis

Stage-1

Potassium	Hexamethyldisilazane	Potassium HMDS	Hydrogen gas
39.10	$C_6H_{19}NSi_2$	$C_6H_{18}KNSi_2$	1/2X2=1.00
	161.39	199.48	

POTASSIUM HMDS

Flow Chart



POTASSIUM HMDS

Material Balance:

Material Balance of Potassium HMDS Stage-1 Batch Size: 1000.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Potassium metal	192.25		Potassium HMDS in THF Solution	1760.00
THF	800.00		THF Loss	40.00
HMDS	809.05		Process Emissions	1.30
			(Hydrogen-1.30)	
Total	1801.30		Total	1801.30

3. SODIUM HMDS

Process Description:

Stage-1

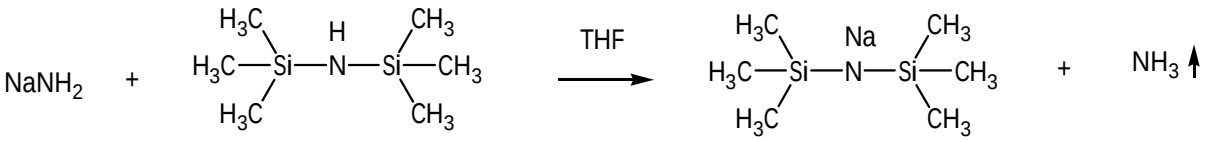
Required quantity of sodium amide powder is charged into a clean and dry reactor under nitrogen purging. Charge THF and start stirring. Raise the reactor temparature upto reflux, start and continue the addition of HMDS under reflux. Maintain the reflux up to completion of the reaction, the liberated ammonia gas is recycled for hydrogen

genarating plant. Cool to room temparature and check the sample. Unload the material into the containers under nitrogen atmosphere.

SODIUM HMDS

Route of Synthesis:

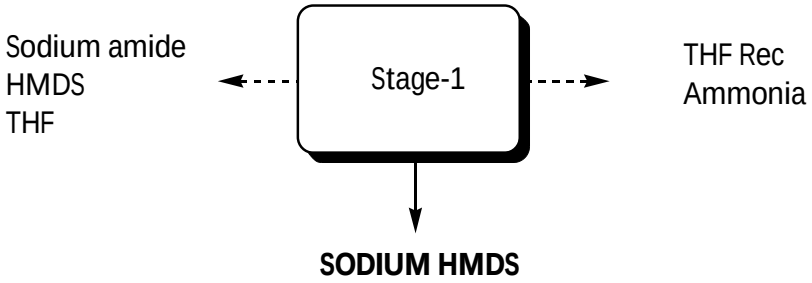
Stage-1:



Soda amide	Hexamethyldisilazane	SodiumHMDS	Ammonia
39.01	$C_6H_{19}NSi_2$	$C_6H_{18}NNaSi_2$	17.03
	161.39	183.37	

SODIUM HMDS

Flow Chart:



SODIUM HMDS

Material Balance:

Material Balance of Sodium HMDS Stage-1 Batch Size: 2000.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Sodium amide	421.00		Sodium HMDS in THF Solution	3154.00
HMDS	1765.00		THF Loss	61.00
THF	1215.00		Process Emission	186.00
			(Ammonia-186)	
Total	3401.00		Total	3401.00

Group-C

1. BENZYL MAGNESIUM CHLORIDE

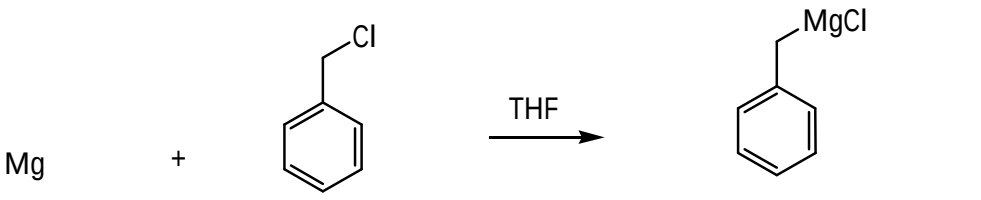
Process Description:

Stage-1

Magnesium metal is charged into a clean and dry reactor under nitrogen purging. Charge DEE & THF and start stirring. Raise the reactor temperature up to required temperature. Start and continue the addition of benzyl chloride up to completion of the reaction. Distill off DEE and maintain for few hours and then cool to room temperature. Check the sample and unload the material into the containers under nitrogen atmosphere.Check the Product and unload the material into the containers under Nitrogen atmosphere.

Route of synthesis:

Stage-1:

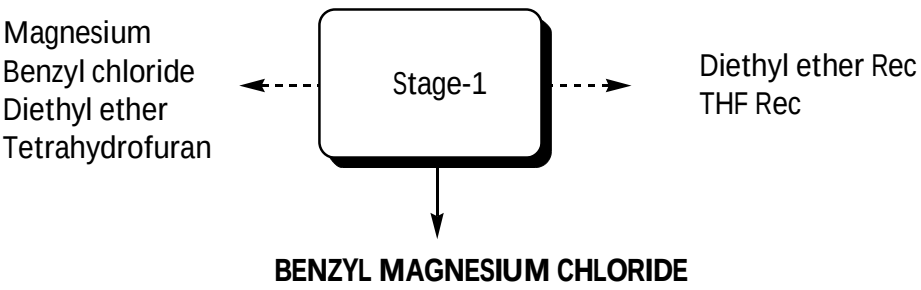


Magnesium
24.31

Benzyl chloride
C_7H_7Cl
126.58

Benzylmagnesium chloride
C_7H_7ClMg
150.89

Flow Chart:



Material Balance:

Material Balance of Benzyl Magnesium Chloride Stage-1 Batch Size: 1000.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Magnesium	160.00		Benzyl magnesium chloride in THF Solution	2056.00
Benzyl chloride	840.00		Diethyl ether Recovery	732.00
Diethyl ether	770.00		Diethyl ether Loss	38.00
Tetrahydrofuran	1100.00		Tetrahydrofuran Loss	44.00
Total	2870.00		Total	2870.00

2. BUTYL MAGNESIUM CHLORIDE

Process Description

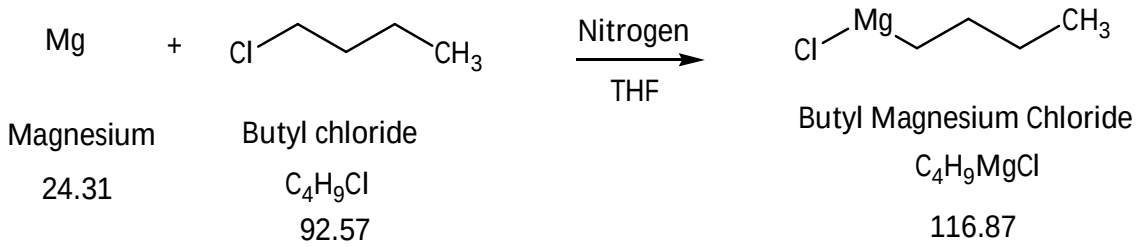
Stage-1

Magnesium metal is charged into a clean and dry reactor under nitrogen purging. Charge THF and start stirring. Raise the reactor temperature up to required temperature. Start and continue the addition of butyl chloride up to completion of the reaction. Maintain for few hours and cool to room temperature. Check the Products and unload the material into the containers under Nitrogen atmosphere.

BUTYL MAGNESIUM CHLORIDE

Route of Synthesis

Stage-1



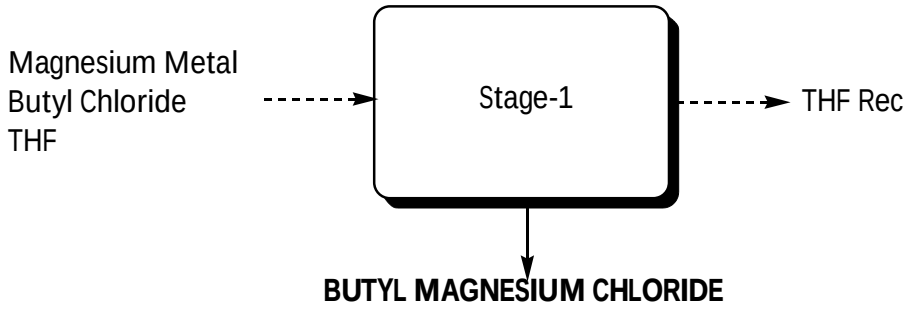
Magnesium
24.31

Butyl chloride
C_4H_9Cl
92.57

Butyl Magnesium Chloride
C_4H_9MgCl
116.87

BUTYL MAGNESIUM CHLORIDE

Flow Chart



BUTYL MAGNESIUM CHLORIDE

Material Balance:

Material Balance of Butyl Magnesium Chloride Stage-1 Batch Size: 1000.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Magnesium Metal	210.00		Butyl Magnesium Chloride in THF Solution	1768.00
Butyl Chloride	790.00		THF Loss	40.00
THF	805.00			
Total	1808.00		Total	1808.00

3. ETHYL MAGNESIUM BROMIDE

Process Description:

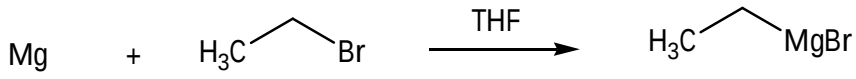
Stage-1

Magnesium metal is charged into a clean and dry reactor under Nitrogen purging,Charge THF and start stirring.Raise the reactor temperature up to required temperature.Start and continue the addition of ethyl bromide upto completion of the reaction.Maintain few hours and cool to room temperature.Check sample and unload the material into containers under Nitrogen atmosphere.

ETHYL MAGNESIUM BROMIDE

Route of Synthesis:

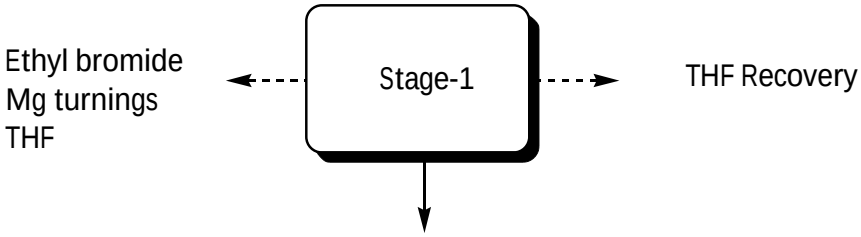
Stage-1:



Magnesium	Ethyl bromide	Ethyl Magnesium Bromide
24.31	108.97	C_2H_5MgBr 133.27

ETHYL MAGNESIUM BROMIDE

Flow Chart:



ETHYL MAGNESIUM BROMIDE

ETHYL MAGNESIUM BROMIDE

Material Balance:

Material Balance of Ethyl Magnesium Bromide Stage-1 Batch Size: 1000.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Ethyl bromide	810.00		Ethyl Magnesium Bromide in THF Solution	2425.00
Mg turnings	190.00		THF Loss	75.00
THF	1500.00			
Total	2500.00		Total	2500.00

ETHYL MAGNESIUM CHLORIDE

Process Description:

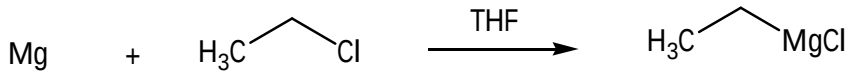
Stage-1

Magnesium metal is charged into a clean and dry reactor under Nitrogen purging, Charge THF and start stirring. Raise the reactor temperature up to required temperature. Start and continue the addition of ethyl chloride up to completion of the reaction. Maintain few hours and cool to room temperature. Check sample and unload the material into containers under Nitrogen atmosphere.

ETHYL MAGNESIUM CHLORIDE

Route of Synthesis:

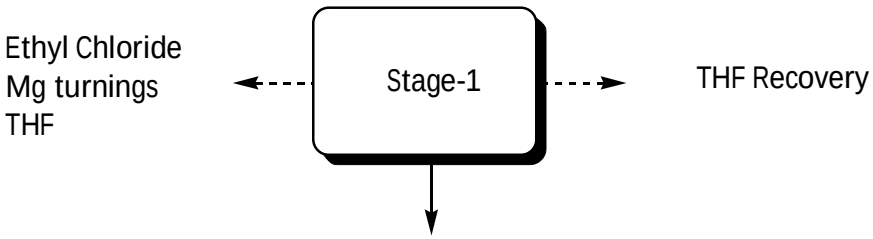
Stage-1:



Magnesium	Ethyl Chloride	Ethyl Magnesium Chloride
24.31	64.51	C_2H_5MgCl
		88.82

ETHYL MAGNESIUM CHLORIDE

Flowchart:



ETHYL MAGNESIUM CHLORIDE

Material Balance:

Material Balance of Ethyl Magnesium Chloride Stage-1 Batch Size: 1000.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Ethyl Chloride	724.00		Ethyl Magnesium Chloride in THF Solution	2425.00
Mg turnings	276.00		THF Loss	75.00
THF	1500.00			
Total	2500.00		Total	2500.00

4. METHYL MAGNESIUM CHLORIDE

Process Description

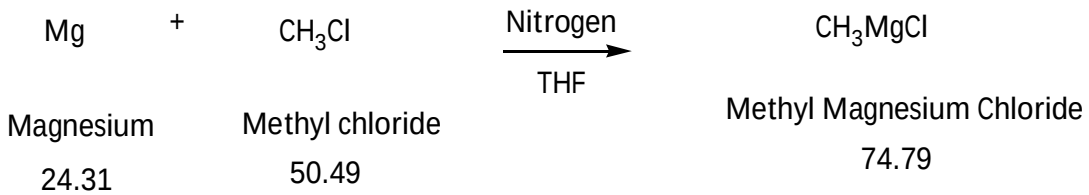
Stage-1

Magnesium metal is charged into a clean and dry reactor under nitrogen purging. Charge THF and start stirring. Raise the reactor temperature up to required temperature. Start and continue the addition of methyl chloride up to completion of the reaction. Maintain for few hours and cool to room temperature. Check Product and unload the material into the containers under nitrogen atmosphere.

METHYL MAGNESIUM CHLORIDE

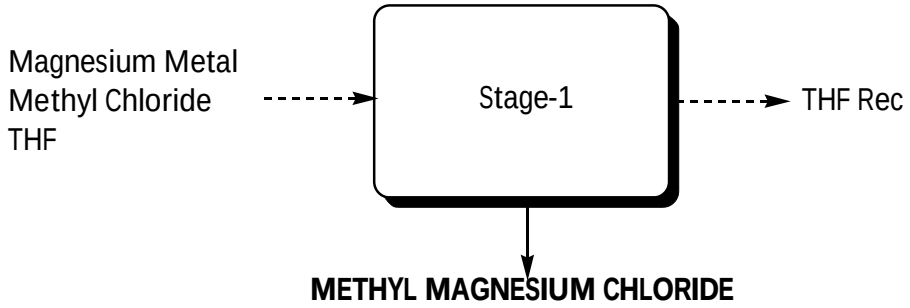
Route of Synthesis

Stage-1



METHYL MAGNESIUM CHLORIDE

Flow Chart



METHYL MAGNESIUM CHLORIDE

Material Balance:

Material Balance of Methyl Magnesium Chloride Stage-1 Batch Size: 3000.0Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Magnesium Metal	974.00		Methyl Magnesium Chloride in THF Solution	4156.50
Methyl Chloride	2026.00		THF Loss	113.50
THF	1270.00			
Total	4270.00		Total	4270.00

5. PHENYL MAGNESIUM CHLORIDE

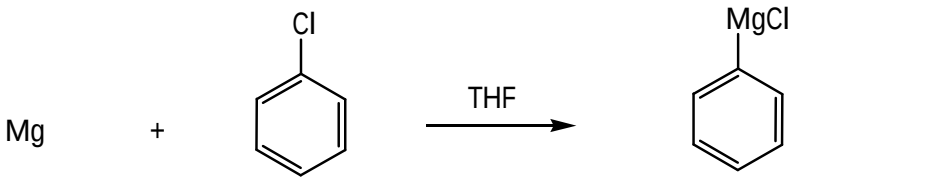
Process Description

Stage-1

Magnesium metal is charged into a clean and dry reactor under nitrogen purging. Charge THF and start stirring. Raise the reactor temperature up to required temperature. Start and continue the addition of Chlorobenzene up to completion of the reaction. Maintain for few hours and cool to room temperature. Check Product and unload the material into the containers under nitrogen atmosphere.

Route of Synthesis:

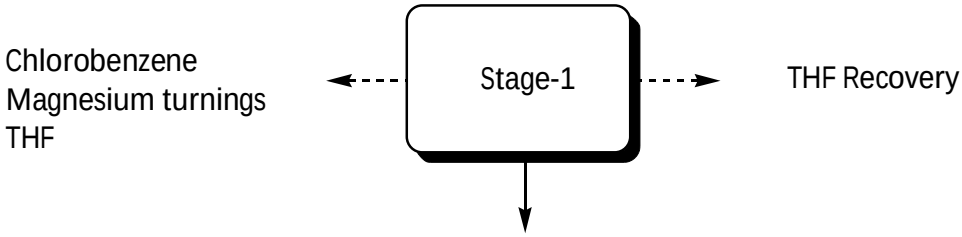
Stage-1:



Magnesium	Chlorobenzene	Phenyl Magnesium chloride
24.31	C_6H_5Cl	C_6H_5ClMg
	112.56	136.86

PHENYL MAGNESIUM CHLORIDE

Flow Chart:



PHENYL MAGNESIUM CHLORIDE

Material Balance:

Material Balance of phenyl Magnesium Chloride Stage-1 Batch Size: 1000.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Chlorobenzene	820.00		Phenyl Magnesium Chloride in THF Solution	1750.00
Magnesium turnings	180.00		THF Loss	50.00
THF	800.00			
Total	1800.00		Total	1800.00

6. SECONDARY BUTYL MAGNESIUM CHLORIDE

Process Description

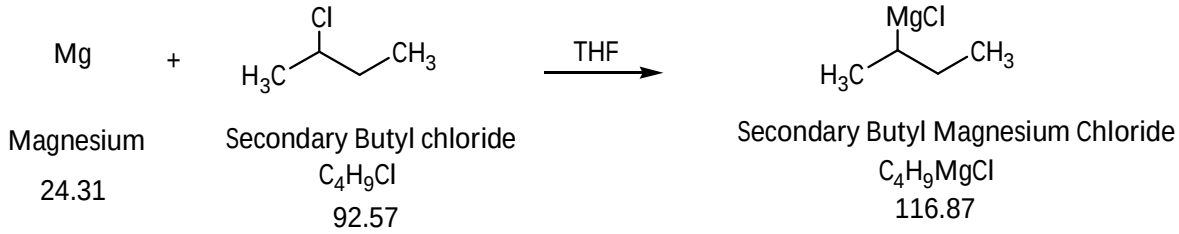
Stage-1

Magnesium metal is charged into a clean and dry reactor under Nitrogen punging.Charge THF and start stirring. Raise the reactor temperature up to required temperature. Start and continue the addition of Sec.Butyl chloride up to completion of the reaction. Maintain few hours and cool to room temperature. Check sample and unload the material into containers under Nitrogen atmosphere.

SECONDARY BUTYL MAGNESIUM CHLORIDE

Route of Synthesis

Stage-1:



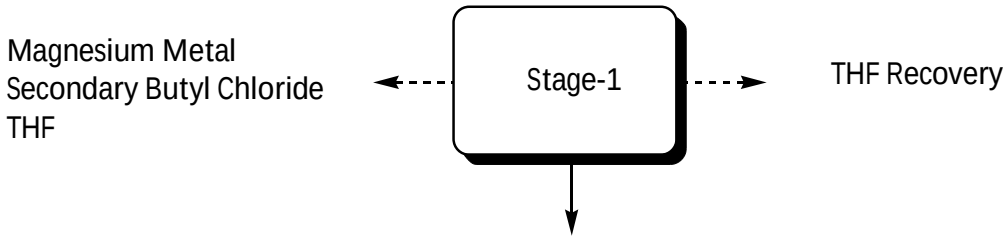
Magnesium
24.31

Secondary Butyl chloride
C_4H_9Cl
92.57

Secondary Butyl Magnesium Chloride
C_4H_9MgCl
116.87

SECONDARY BUTYL MAGNESIUM CHLORIDE

Flow Chart:



SECONDARY BUTYL MAGNESIUM CHLORIDE

SECONDARY BUTYL MAGNESIUM CHLORIDE

Material Balance:

Material Balance of Secondary Butyl Magnesium Chloride Stage-1 Batch Size: 1000.0 Kgs				
Name of the input	Quantity in Kg		Name of the out put	Quantity in Kg
Magnesium Metal	203.00		Secondary Butyl Magnesium Chloride in THF	1953.00
Secondary Butyl Chloride	800.00		THF Loss	50.00
THF	1000.00			
Total	2003.00		Total	2003.00

Annexure - IV

WATER REQUIREMENT DETAILS

S. No.	Purpose	Water Requirement In KLD
1	Process	0.00
2	Washings	1.00
3	Boiler make up	9.00
4	Cooling towers make up	26.00
5	Domestic	6.00
6	Gardening	10.00
	Total	**52.00**

Annexure - V

SOLID WASTE DETAILS

S.No.	Name of the Solid Waste	Quantity In Kgs/Day	Disposal method
1.	Coal ash from Boiler	1800.00	Sent to Brick Manufacturers
2.	Solvent distillation Residue from Reactor washings	60.00	Sent to Cement industries
3.	RO Salts	25.00	Sent to TSDF

HAZARDOUS WASTE DETAILS

S.No.	Description	Quantity	Mode of Disposal
1	Grease and Oil filter and cotton	200 Kgs/Annum	Sent to TSDF, Dundigal, R.R Dist for incineration/Authorised cement industries for Co-processing.
2	Waste Mineral oils	350 Ltrs/Annum	Sent to Authorised Reprocessors/Recyclers
3	Containers & Container liners of Hazardous waste and chemicals	250 Drums /Month	After detoxification,it should be disposed to the outside agencies.

Annexure - VI

STACK EMISSION DETAILS FOR DG SET

Particulars	Units	1.5 TPH Coal fired Boiler
Type of Fuel	---	Indian Coal
Coal Consumption	TPD	3.75
Ash Content	%	47
Sulphur Content	%	0.8
Nitrogen Content	%	1.07
No. of Stacks	No	1
Height of stack	M	30
Diameter of Stack	M	0.60
Temperature of Flue Gas	^{o}C	95
Velocity of Flue Gas	m/s	6.5
Particulate Matter at outlet of Bag filter (Based on 115 mg/Nm3 at outlet)	gm/sec	0.21
Sulphur dioxide emission	gm/sec	0.46
Oxides of Nitrogen emission	gm/sec	0.57

STACK EMISSIONS FOR THERMOPACK BOILER

Particulars	Units	2,00,000 kcal/hr. Thermo pack Boiler(4 No's)
Thermo pack Boiler Capacity	Kcal/hr.	2,00,000
Type of Fuel	--	Coal
Stack Temperature Before Air preheater	^{o}C	320
Stack Temperature After Air preheater	^{o}C	160
Combination Air Temperature	^{o}C	140
Efficiency Increased By	%	5.0
Stack Height	m	13.56
Fuel Consumption per Day	TPD	0.46

STACK EMISSIONS DETAILS FOR EXISTING DG SETS

Capacity In KVA	Emission of SPM in mg/m^3	Emission Of SO_2 in mg/m^3	Emission of NO_x in mg/m^3	Stack dia. In m	Flue Gas Temp. in ^{O}C	Stack Height in (m)	Flue gas Velocity In m/sec.
250 KVA (Existing)	50.0	20.0	40.0	0.30	290	10	12.76
250 KVA (proposed)	50.0	20.0	40.0	0.30	290	10	12.76

Annexure - VII

PROCESS EMISSION DETAILS

S. No.	Name of the Gas	Quantity In Kg/Day	Disposal Method
1	Methane	70.00	Evolved gas Passed through arrestor and flarred
2	Ammonia	93.00	Ammonia is fed to hydrogen plant and after cracking released hydrogen used in sodium hydride reaction
3	Hydrogen	80.00	Evolved hydrogen is reused in H_2 Plant and used in Sodium hydride reaction

Annexure - VIII

LIST OF RAW MATERIALS

GROUP-A

1.LITHIUM METHOXIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Lithium metal	46.00	6.13
2	Methanol	550.00	73.33

2. LITHIUM TERT-BUTOXIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Lithium	28.00	3.73
2	Tert-Butanol	325.00	43.33

3.LITHIUM AMIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Lithium	150.00	100.00
2	Ammonia	372.30	248.20

4. MAGNESIUM METHOXIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Magnesium Metal	30.00	20.00
2	Methanol	594.00	396.00
3	Nitrogen	2.00	1.33

5. MAGNESIUM TERTIARY BUTOXIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Methyl Magnsium Chloride	214.00	356.67
2	THF	1400.00	2333.33
3	Tert-Butanol	200.00	333.33

6. N-BUTYL LITHIUM

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	N-Butyl chloride	80.00	66.67
2	Lithium	12.00	10.00
3	Hexane	210.00	175.00

7. POTASSIUM TERT BUTOXIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Potassium	185.20	61.73
2	Tert butanol	641.42	213.81

8.SODIUM AMIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Sodium	310.00	620.00
2	Ammonia	203.38	406.76

9.SODIUM HYDRIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Sodium	649.00	1081.67
2	Hydrogen	29.00	48.33
3	Paraffin oil	1010.52	1684.20

10. SODIUM TERT BUTOXIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Sodium	141.18	141.18
2	Tert-Butanol	650.00	650.00

GROUP-B

1. LITHIUM HEXAMETHYLDISILAZANE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Lithium metal	19.00	19.00
2	HMDS	483.00	483.00
3	THF	500.00	500.00

2. POTASSIUMHEXAMETHYLDISILAZANE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Potassium metal	192.25	192.25
2	THF	800.00	800.00
3	HMDS	809.05	809.05

3.SODIUM HEXAMETHYLDISILAZINE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Sodium amide	421.00	421.00
2	HMDS	1765.00	1765.00

GROUP-C

1. BENZYL MAGNESIUM CHLORIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Magnesium	160.00	213.33
2	Benzyl chloride	840.00	1120.00

2.BUTYL MAGNESIUM CHLORIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Magnesium Metal	210.00	280.00
2	Butyl Chloride	790.00	1053.33

3. ETHYL MAGNESIUM CHLORIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Ethyl Chloride	724.00	965.33
2	Mg turnings	276.00	368.00

4. ETHYL MAGNESIUM BROMIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Ethyl bromide	810.00	1080.00
2	Mg turnings	190.00	253.33

5. METHYL MAGNESIUM CHLORIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Magnesium Metal	974.00	1298.67
2	Methyl Chloride	2026.00	2701.33

6. PHENYL MAGNESIUM CHLORIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Chlorobenzene	820.00	1093.33
2	Magnesium turnings	180.00	240.00

SECONDARY BUTYL MAGNESIUM CHLORIDE

S.No.	Raw Material	Consumption/ Batch in Kgs	Consumption/ Day in Kgs
1	Magnesium Metal	203.00	270.67
2	Secondary Butyl Chloride	800.00	1066.67

Annexure - IX

WASTE WATER DETAILS

S.No.	Purpose	Effluent Generation In KLD
1	Process	0.00
2	Washings	1.00
3	Boiler blow down	1.00
4	Cooling towers blow down	4.00
5	Domestic	5.00
	Total	**11.00**