

Executive Summary Of Draft Rapid Environmental Impact Assessment Report

**FOR
THE PROPOSED EXPANSION PROJECT FOR MANUFACTURING OF
PLAIN & PRE-LAMINATED PARTICLE BOARDS AND
SYNTHETIC ORGANIC RESINS & PARAFFIN WAX EMULSION**

Activity: 5(f) - "SYNTHETIC ORGANIC CHEMICALS INDUSTRY"

M/s. Patel Kenwood Pvt. Ltd.

Located at:

**Plot No.: 1 to 6, Block No.: 67 - 68, NH-8,
Village- Moti Naroli, Tal- Mangrol,
Dist.: Surat (Gujarat) India.
Pin code – 394 110**

EIA CONSULTANT ORGANIZATION

**UNISTAR ENVIRONMENT AND RESEARCH LABS PVT. LTD.VAPI – GUJARAT
(NABET Accredited Consultant Organization, Sr. No. 158 of the List Dated 5th September 2014)**

Executive Summary

1.1. INTRODUCTION

M/s. Patel Kenwood Pvt. Ltd. is an existing “Medium Scale” “Private Limited Company” governed by the team of 6 directors, and is based at Plot No. 1 to 6, Block No. 67-68, NH-8, Village.- MotiNaroli, Tal.-Mangrol, Dist.-Surat (Gujarat). At present the company is operating for manufacturing of Synthetic Organic Resins (Bonding Glue): 170.00 MT/Month and Particle Board (plain and pre-laminated): 1125 MT/Month (1500 M³/Month). Now considering the demand & prospects of Particle boards in local market company has decided for expansion project involves the capacity enhancement of its products “Particle Boards” as well as “Bonding Glues (Resins)” which are synthetic organic Resins used to manufacture Plain and Pre-laminated Particle Board. The company has planned to procure the latest technology for manufacturing these proposed products. The expansion will be carried out within the existing unit.

The proposed project is for production of “Synthetic organic Compounds” which falls under item no. 5(f) – Synthetics Organic Chemical Industries as per the EIA notification-2006. Hence needs to get the Prior Environmental Clearance from Ministry of Environment and Forest prior to commissioning of the proposed new project. The key highlight of proposed project is presented below.

M/s. Patel Kenwood Pvt. Ltd. is situated at Plot No. 1 to 6, Block No. 67-68, NH-8, Vill.- MotiNaroli, Tal.-Mangrol, Dist.-Surat (Gujarat) and at Lat.: 21.418617°N, Long.: 72.967582°E. The existing unit is under operation since 2006. The proposed unit will be commissioned after obtaining E.C., NOC & CC&A. The land is already acquired for the existing unit. The existing industrial plot is adequate for proposed expansion and no procurement of additional land is required. This Unit is situated outside Industrial Area/Estate and the proposed unit will be commissioned after obtaining EC. Proposed expansion of the existing unit will be done in existing premises only and the production of synthetic organic chemical and particle board will be done in the same unit. As per the EIA notification- 2006, the proposed project falls under item no. 5(f) – Synthetics Organic Chemical Industries, Category-A (Unit situated outside of notified industrial estate/area).

The company has total land admeasuring about 43151.53 m². For greenbelt company has allocated 11838.00 m² (27.4 % of total land) land within premises and along plant boundary. Total cost of the proposed project is estimated around Rs. 1210.00 Lakhs. For EMP company has allocated Rs. 40 lakhs as Capital cost and Rs37 Lakhs /Year as Recurring cost.

After proposed expansion the total water requirement will be about 50 KLD. The details of water source, consumption and water pollution management are as below:

- **Industrial: Existing** - 4 KLD & **Proposed** -20 KLD
- **Domestic: Existing** - 6 KLD, & **Proposed** – 10 KLD

- **Greenbelt: Existing** - 10 KLD
- **Total: Existing** - 20 KLD & **Proposed** -30 KLD

Water requirement will be met by abstracting ground water (in house bore well).

The details of power requirement and its source are as below:

- **Power requirement:** Existing- 475 KVA & Proposed- 625 KVA; Total- 1100 KVA From The power will be sourced from supply of Dakshin Gujarat Vij. Co. Ltd. In addition, company has installed one DG set of 320 KVA capacity and for proposed expansion additional DG set of 125 KVA will be installed. These generators will be kept as standby arrangement. For these generators, total diesel at rate of 65 Lit/Hr. (Existing 50 Lit/Hr and proposed 15 Lit/Hr) will be used as fuel.

At present, company has installed Hot Water Generator (1 No., 20 Lakh Kcal/Hr. Capacity) as utility, which will be removed after proposed expansion. For proposed expansion Thermic Fluid Heaters (1 No. of 20 lac Kcal/Hr capacity and 1 No. of 30 lac Kcal/Hr capacity) will be installed. The fuel requirement of these Hot Water Generator and Thermic Fluid Heaters are as below:

- **Existing:** for Hot water generator, Bagasse 1.5 MT/Hr Fire Wood as Startup/Emergency Fuel: 5.0 TPD
- **Proposed:** For proposed TFH Bagasse 3.5 MT/Hr and Fire Wood as Startup/Emergency Fuel: 12 TPD

The details of Waste water Generation & management are as below:

- **Domestic:** Total 9 KLD (Existing 5.5 KLD & Proposed 3.5 KLD)
- **Industrial Effluent:** Nil from Existing & proposed

The domestic sewage will be disposed off through septic tank & soak pit.

The details of the emission source of the unit are as below:

Existing:

- Stack-I: Hot Water Generator (Ht.-30 Mt., Dia-850 mm)
- Stack-II: DG Set (Ht.-9 Mt., Dia-150 mm)
- Process Stacks:5 Nos. (Ht.-15 M, Dia-100 mm)

After Proposed

- Stack-I: TFH -1 (Ht.-30 Mt., Dia-850 mm),
- Stack-II: TFH -2 (Ht.-30 Mt., Dia-850 mm)
- Stack-III: DG Set 1 (Ht.-9 Mt., Dia-150 mm)
- Stack-III: DG Set 2 (Ht.-9 Mt., Dia-250 mm)
- Process Stacks:6 Nos. (Ht.-15 M, Dia-100 mm)

Details of Resource Recovery Reuse/Recycling are as below:

- The waste coarse bagasse particles are used as Fuel.

- The solid particles/wastes from process of particle board mfg. are recycled back in manufacturing process.

The details of Solid/Hazardous Wastes& Management are as below:

- Binding Wire: 92.50 kg/Day (Sell to Scrap Dealers)
- Bagasse: 68.53 Mt/Day (Reused in Process)
- Process Waste: 200 Kg/Month (Reused in Process)
- Ash of Bagasse from TFH: 2.5-3.5 MT/Day (Sell to Bricks Mfg. units & other user)
- Used Oil: 300 Lit./Yr. (Sold to approved recycler)
- Discarded Empty bags, Drum, Carboys, paper: 350 Nos./Yr (Sold to approved scrape dealers/recycler)

1.2. PROPOSED PRODUCTS AND RAW MATERIALS

Sr. No.	Name of the product		Raw Materials	Consumption (kg/MT)
01	Particle Boards		Bagasse	2500.00
			Bonding Glue	203.00
			Decorative Paper	14.00
			Craft Paper/ Plastic Sheet	15.00
02	Bonding and Lamination compound	Urea Formaldehyde Resin	Formaldehyde	766.00
			Urea	50.00
			Water	182.50
			Sodium Penta Chlorophenate	1.00
			Caustic Soda	0.250
			Formic Acid	0.250
		Melamine Formaldehyde Resin	Formaldehyde	480.00
			Water	59.00
			Melamine	380.00
			Mono Ethylene Glycol (MEG)/DEG	48.00
	Paraffin Wax Emulsion	NBA	26.00	
		Para formaldehyde	7.00	
		Paraffin Wax	272.00	
		Water	674.00	
		Liq. Ammonia	9.00	
	Stearic Acid	36.00		
	Borax Powder	9.00		

The details of existing consented products & proposed expansion of M/s. Patel Kenwood Pvt. Ltd. along with production capacity are presented below in tabulated form.

Sr. No	Name of Products	Production Capacity MT/Month		
		Existing	Proposed	Total
1	Plain and Pre-Laminated Particle Boards	1125.00	2345.00	3470.00
2	Synthetic Organic ResinS (Bonding glue)	170.00	2330.00	2500.00
	a. Urea Formaldehyde Resin			
	b. Melamine Formaldehyde Resin			
	c. Paraffin Wax Emulsion			

For product spectrum consisting of above product groups many raw materials are/will be required. The raw materials are/will be indigenous and will be transported through National Highway Network in either trucks or tankers. The detail of the raw materials required for the proposed products are presented below:

1.3. PROJECT AREA & BASELINE ENVIRONMENTAL STATUS

PROJECT AREA

The company – M/s. Patel Kenwood Pvt. Ltd. is already under operation at Plot No. 1 to 6, Block No.67-68, N.H.No.8, Village – Motinaroli, Ta – Mangrol, Dist – Surat (Gujarat). The company has proposed the expansion within same premises without acquisition of additional land for the proposed unit. The village Motinaroli has all required infrastructure like electricity, roads, transportation etc. Also it is to be noted that the nearby area of the Motinaroli has considerable human resource which is required to be employed for social upliftment of the area.

The site is located in non-agriculture private land converted as NA land for industrial operations. The site is located at Motinaroli and it is very well connected to National Highway No.8 as it is adjoining the NH8. Beside the national highway, the site is well connected to other region of state and country by Western Railways (Kim-3 km. and Surat-28 Km), the airport (Surat- 47 km.) and Magdalla port (36 KM).

The area has global identity due to the nearby city-Surat, presence of lignite mine of GMDC as well as for its industrial establishments & development especially in areas around Surat & Kim. The region is also exhibiting very good agricultural lands. The area has contributed significantly in the development of our Nation's economy through the excellent industrial growth & other businesses like textile & diamond. The area has realized high development in last two decades rapid growth in industrial development, urbanization and business operations. The area has been selected as the production hub by many large banner industries of chemicals & textile. Recently, the nearby area has shown good development in synthetic wood & allied industrial sector.

Average relative humidity of the site area is recorded as 59.88% with minimum 18.0% and maximum 99.4%. Maximum temperature during the study period was noticed on 37.5°C whereas the minimum was recorded on 12.0°C. The average temperature for the study period was recorded to be 26.32 °C. The area has tropical weather and enjoys three distinct seasons of mild winter, moderate summer and heavy monsoon, with rainfall recorded to be around 1800 mm per annum. The study area is having average elevation of 11 m to 36 m above mean sea level. The prominent slope of the area east to west direction.

BASELINE STATUS

The baseline study for the present EIA was conducted during period of 1st October 2013 to 31st December 2013 to collect the one season (winter) data in accordance with the draft TORs proposed in Form I as well as final awarded TORs issued by MoEF. The study was conducted with reference the draft TORs in initial stage and up on receipt of approved TORs, conditions given in the approved TORs were referred for verification of scope of baseline study to modify the ongoing/completed study as well as to schedule the additional study, as required. All monitoring & sampling is done for the study area covering 5 km radial distance from site, during the study period, covering the requirements of the TOR awarded by EAC, MoEF, New Delhi.

The frequency of various environmental sampling & analysis was determined following the guidelines provided by MoEF in online EIA Manual. Selection of method for sampling, preservation and analysis plays very important role in baseline environmental study. Considering the necessity of quality in environmental sampling & analysis, CPCB has issued guidelines for sampling & analysis. Even the EIA manual published by MoEF has also provided necessary guidelines for baseline study. Considering these guidelines, methods of sampling & analysis of environmental samples have been selected/ adopted.

The details of environmental study conducted during the study period are shown below:

Attributes	Sampling & Monitoring Frequency
Meteorological Data	Hourly continuous for Study Period
Ambient Air Quality	24 hourly twice a week during study at 6 locations period
Noise	Once in Study Period at 6 locations
Ground Water	Once in Study Period at 6 locations
Surface Water	Once in Study Period
Soil Quality	Once in Study Period at 6 locations
Land Use -Land Cover & Topography and geohydrology & other maps	Once in Study Period
Ecological Data	Once in Study Period
Socioeconomic Data	Once in Study Period

During study period, PM10 level at the project site was increased at times due to the transportation of vehicles through the National Highway 8. Transportation of vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. The concentration for PM₁₀, SO₂ and NO_x are to found below the National Ambient Air Quality Standards published by CPCB. The water quality of the area was found more or less acceptable for non-potable uses. Besides, no issues of critical pollution of water resources have been noticed during the study period. The noise levels at all locations were found well within the limits of Ambient Noise Level stipulated by CPCB. Overall Soil quality of the area found to be satisfactory as no critical issue regarding these has been noticed during the study period. Except indicted above mentioned issues of air quality & water quality, no other indication of environmental pollution & stress within the study area has been observed during the study period. Ambient air quality, water quality and soil quality has been found good in case of all location.

1.4. PROBABLE IMPACTS

The study for the proposed project of M/s. Patel Kenwood Pvt. Ltd. at MotiNaroli has revealed that the upcoming activities of synthetic organic resin manufacturing will have negligible impacts which would mainly occur only upon accidental spill/leak of chemicals/materials. This has revealed that there would not be any major impacts on environment due to the proposed project except the impacts of emissions and major accident scenarios which may extend out of the plant area.

It is also noticed that the impacts due to wastewater is not anticipated as industrial wastewater will not be generated and only 9.5 KLD sewage will be generated which will be disposed off through Septic Tank & Soak Pit. Risk assessment study has been conducted for the proposed project and the suggestions made in the report shall be implemented strictly to prevent any chances of environmental contamination and employee health & safety. By the efficient implementation of Hazard/Risk control/Prevention measures the negative impacts would be avoided.

Further, it has been noticed that the impacts due to utility operations would be negligible as the bagasse & wood will be used as fuel. Bagasse is eco-friendly fuel which does not emit any toxic pollutant and hence, there would not be any major impacts due to emission. For control of particulate emission from process, company will install adequate APCDs (Cyclone dust separators & bag filters) which will minimise the impacts of process/fugitive emissions. Besides, the hazardous waste generated from the production process & utility operation will be managed as per MoEF/CPCB/GPCB Guidelines. Hence issues of air, water&land contamination are not envisaged. The water requirement will be met by drawl of ground water from in-house bore wells. The ground water resources of the area are adequate to cater the demand of the proposed project & other competing users of the area. There will not be any kind of industrial effluent from proposed project. Hence issue of water or land/soil pollution is also not envisaged.

The proponent will plant varieties of trees & shrubs in the premises. The Greenbelt will be maintained in excellent condition giving visual of dense vegetation. The proponent will manage the greenbelt with all possible care & attention to improve environmental condition. Thus the beneficial impacts due to the dense greenbelt are envisaged.

Other than these aspects, it is also found that the high noise generation sources will not be the part of proposed project. The TFHs, DG sets and production units may have some noise which will be mitigated by installation of acoustic enclosure/silencer or barriers. The impacts of increased noise level will be further mitigated by provision of PPEs and shift management. The noise level out of the premises is envisaged to be <65-70 dB(A) in day and 55-60 dB(A) in night as maximum. Thus looking to the source, potential noise level generation & planned mitigation measures; impacts due to noise are not envisaged.

Company will regularly conduct the CSR activities for social welfare & upliftment. Necessary documents & records of all activities at the Unit for adequate production, environment & safety management will be kept on regular basis. All aspects of safety will be adequately managed and required safety material, equipment and facilities will be provided to all employees, contractor & visitors. Thus issue of impacts due to probable hazards/risk/disaster would be minimal.

Thus looking all the management procedures/actions, environmental management activities and other allied functions of management system, it is concluded that there will not be any major considerable impacts on environment.

1.5. MITIGATION MEASURES & EMP

The proposed project will have some potential of impact in form of pollution sources mainly as the emission from utilities & accidental incidents. Such sources of impacts and the significance of the impacts are already described in above sections with necessary mitigations. In line with the above description some important mitigation measures are cited as necessary requirement to prevent &/or control / minimize the probable impacts of proposed project on environment. The details of such mitigations are described below under respective heading with necessary details.

Air Pollution Control

- Only Bagasse & firewood shall be used as fuel for operation of proposed Thermic Fluid heaters
- DG sets shall be used only during the failure of power supply from DGVCL Grid.
- Cyclone Dust separators & Bag Filters shall be provided for control of PM arising from process area/plants.

- Stacks of adequate height shall be attached to all TFHs, DG sets and APCDs (cyclone dust separators & Bag filters) of Process areas
- The company shall provide all necessary PPEs to employee & regular workplace monitoring programs.
- Properly designed enclosed storage vessels made of suitable materials and adequate handling & transfer system preferably closed system operated through the automation like PLC shall be provided.
- All mitigation, control & prevention measures as suggested in Safety Audit report & RA report shall be provided.
- Regular monitoring of Stack emission, Ambient Air and workplace air shall be done as per Monitoring plan
- Transportation must be done in closed approved vehicles only. All safety & control measures shall be provided to prevent spill, leak and accident during transportation.
- All transport vehicles must comply with HAZMAT guidelines & statutory requirements

Water & Wastewater Management

- Implementation of mitigation measures suggested for Land Environment
- Provision of Septic & Soak Pit of adequate capacity/size.
- Drawl of minimal quantity of ground water
- Adequate & minimal use of water
- Metering for measurement of groundwater drawl
- Rainwater Harvesting for recharging of groundwater as well as to meet the water requirement of project
- Implementation of safety measures & emergency management system for management of hazardous chemicals

Land Environment Management

- Impervious lining shall be provided in all area likely to be affected by the spill / leak of hazardous chemicals/wastes.
- Automated material transfer system through close pipeline for all hazardous Chemical to be transferred in bulk.
- Proponent shall maintain a good spill or leak control actions plan to cope up with such incidents.
- Hazardous waste management as per statutory guidelines & requirements.
- All possible recyclable/reusable wastes shall be reused/ recycled within the premises.
- All transportation shall be done in closed truck/tanker approved as per statutory requirement to prevent volatile emissions as well as leak/spill during transportation.

- HAZMAT guidelines shall be followed for transport of all hazardous materials. All required safety & emergency equipment & materials including safety & emergency management guidelines shall be provided on the transport vehicles.
- Greenbelt development in & around premises shall be adequately planned & managed to ensure healthy & dens greenbelt/pasture throughout the life of the project.
- Monitoring of soil samples shall be done as per Environmental monitoring plan.
- No waste shall be disposed off on land in any condition.

Ecological Environment Management

- Implementation of all mitigation measures suggested for control of air pollution, water pollution, land pollution and noise pollution
- Implementation of control & prevention measures for all hazards associated with the project
- Implementation of all measures suggested in RA and Disaster/Emergency Management Plan
- Development & management of Healthy Dens Greenbelt

Noise & Vibration Generation & Management

- Housing of all utilities will be done on sturdy non-vibrating foundations with rubber pads.
- For prevention of noise propagation adequate barrier will be created in form of properly designed building wall & greenbelt.
- Low noise generation TFHs & other machineries will be installed in unit.
- DG set will be selected in accordance with the CPCB guidelines for emission & noise generation with acoustic enclosures.
- Further to cope up with the issue of occupational noise effect, PPEs like earmuff & earplug will be provided to all concerned employees.
- The impacts of noise on occupational health would be mitigated by proper shift timing & regular annual checkup of concern employees.

Occupation Health & Safety

M/s. Patel Kenwood Pvt. Ltd. has formulated well defined safety procedures & code as well as on-site emergency plan for its proposed unit. The company will maintain good workplace condition to ensure good status of occupational health & safety. All necessary arrangement with necessary requisites and emergency utilities with established procedure & codes and on-site emergency plan will be made available for proposed project.

- All necessary implementation & actions for ensuring safe work condition are well in place in the existing unit of the proponent.
- Health check-up programs is/will be carried out regularly and all records & documents related with employee health check-up program are maintained.

- All risk control & prevention measures will be implemented in proposed unit. Management will provide necessary PPEs, safety equipment/ materials as mentioned in RA Report for risk reduction to ensure healthy & safe work conditions.
- Regular inspection for the safety procedures and use of PPEs & Safety equipment/material is done by the management/safety cell.
- Premedical examination and periodical examination will be carried out once in a six month and record will be maintained in Form No-32 & 33 as per GFR.
- PFT & LFT test will be carried out during pre-placement and periodical examination especially considering the toxic effects of Formaldehyde.
- Training programs & safety audit shall be done on regular basis to prevent impacts of the operational activities on occupational health as well as to improve workplace condition & safe work system.
- Proponent shall practice all safety procedures after proposed project & also ensure that all necessary PPEs, Safety materials/ equipment are in place.

Greenbelt Development

Unit has planned to setup its proposed unit in existing premises with all available land & buildings & sheds. The company has proposed to develop the greenbelt in 11838 m² land in & along the premises. Same greenbelt will be maintained in healthy & dense condition throughout its operation period after the proposed project. All necessary actions like fertilization, irrigation, pest control, pruning & trimming as well as re-plantation as required shall be taken timely to ensure dense healthy greenbelt all the time

Environment Health & Safety Management Cell

The company has already formulated the environment management cell. With vision to improve the efficiency of existing EMC and to operate the additional/ modified EMP requirements, Environmental Management Cell has to be modified for efficient & easy operation of environment management system & operations that of.

Socioeconomic & CSR Activities

The proposed project will not have any considerable sources of pollution & impacts on environment of the area except impacts due to probable hazards as determined in risk assessment study. Considering probable adverse impacts following mitigation measures have been suggested as EMP for prevention & control/minimization of probable adverse impacts & intensification of beneficial impacts.

- All structural measures suggested for under section of Air, Water, Land & Noise shall be provided well before the inception of the project operation.
- All action plans & mitigation measures suggested in risk assessment and emergency management plan shall be implemented to prevent any major chance of adverse impacts on socioeconomic layout & occupational health.

- All mitigation measures shall be implemented for control of air pollution, water pollution, land pollution and noise pollution.
- Employment for /after proposed project shall be done with priority to the local people and at least 70-80% employment shall be done from local areas.
- Hazards associated with the proposed project shall be managed/control by implementation of safe work procedures, risk/hazard control /prevention measures and provision of PPEs for all employees etc.
- The company shall conduct social activities as part of its CSR Program and activities shall be planned by the proponent to enhance the social condition mainly for education & health improvement in the project area.
- All necessary facilities like first aid, health facilities etc. available in company shall be made available to needy in the surrounding local area.

1.6. RISK ASSESSMENT & SAFETY MEASURES

Risk Assessment study has been undertaken for the proposed synthetic organic chemicals manufacturing unit. The study was focused on the assessment of potential hazards & risk associated with the hazardous raw materials storage & handling as per the condition of awarded TOR issued by MoEF, Delhi.

It has been noticed that only 7 chemicals out of 15 chemicals of proposed project are hazardous in nature as per MSIHC rules (as amended), 2000. These hazardous materials will be received in tanker load or drums by road truck/tanker and stored in either tanks provided in farm area or in designated areas of raw materials storage. All safety measures will be provided at design level with all required safety system for the specific chemicals to prevent the associated hazards & risks. Based on the data furnished and the study of the proposed project, certain hazards have been identified and their consequences are modelled mathematically using ALOHA software. Mapping of various scenarios with hazardous distances and safe distances are drawn on site plan for easy understanding of the consequences of the accident/ incident.

The study indicates that possible hazards associated with the plant are confined either to the storage area or plant premises. The details of present RA study have been described in the subsequent sections under respective headings.

Material Handling:

Stores and plant people will be handling the raw materials & products day to day in tones of quantity and this may cause accident. Considering this, company has planned that the chemicals will be transferred by hand trolley to avoid issues related with Occupational health like MSD & other hazards related with chemical spill/leak. Manual handling of raw materials and products in small quantity will be preferred as safe practice. The Hand trolley will be used in the bagging area, store to plant, from one plant to another plant etc. These trolleys will also be used to shift the heavy material / equipment from one place to another.

Railings to three sides of trolley will be provided and the material will be suitably tied with rope while shifting to avoid fall of equipment from the trolley.

No leakage / spillage will be allowed from any pipe line, connected fitting, drain points and gland of the pumps. This helps to avoid an exposure of chemicals to the employees concerned and also for process convenience.

Safety Gears & PPEs:

- The management is fully aware and convinced for protection of probable hazards which will be a responsible cause of the accident to the employees. Hence the different types of the PPEs will be used according to the exposure and type of the hazards. Sufficient inventory of PPEs will be maintained to ensure safety at all work areas.
- Self-Contained Breathing Apparatus of 20 minutes capacity will be provided in the factory premises, which will regularly checked and maintained in good operating condition. Extra cylinders will be maintained with full pressure above 200 bars.
- The provision of safety shower and eye wash fountain will be installed in the hazardous area in the plant. They will be maintained in good and working condition.
- The majority persons will be issued the PPEs according to the nature of work and kind of hazard exposed. They will be issued in following Pattern:
 1. Safety shoes, Goggles, Helmet, and Gumboots will be provided to all level of employees which are of standard make and as per IS – Standard.
 2. Workers working in dust prone areas will be issued dust / mouth pad type mask besides other equipments.
 3. The employees engaged in high noise area will be issued Ear plug / Muff apart from other PPEs.
 4. Welders will be provided with welding goggles besides the normal protective wears.

Fire Prevention:

Fire will be the common Hazard in the Factory and management will provide many facilities for its prevention and control.

- “NO SMOKING” areas are to be clearly marked and defined in the whole manufacturing and all over storage. The vehicles are not to be allowed in this area without putting Muffler to the exhaust and without authorization.
- To prevent static discharges at every place having possibility of static discharge grounding facility will be provided. All electrical appliances will also be grounded. Jumpers will also be provided across the flange joints of the pipelines carrying solvents. The earthing connections will be regularly tested for its continuity and record will be maintained.
- Adequate separation between flammable, toxic and other area will be provided. In all the manufacturing plants, the electrical equipments used will be flame proof

including electrical lights. Enough precautions will be taken to prevent spilled / leaked chemicals entering to the drain lines and spreading the danger of fire.

- There will be fire bell points all over the factory to inform employees as well as public about the fire. The factory siren will also be used. A clear fire information / alarm system will be written down and made known to all employees.
- Fire hydrant system shall also be provided in tank farm area, raw material storage area, processing area and near office building. The following guidelines can be referred for purchase of fire hydrant system.

Fire Protection:

Management is aware that the most of the fire prevention measures are being taken but chances of breakout of fire in the plant area cannot be ruled out. Hence, adequate fire protection arrangements will be provided. Looking to the nature of chemicals handled / processed and the available fire risk in the various section of the Factory, care will be taken to provide various types of the fire extinguishers all over the plant area. These equipments will be located at strategic location in the plants/ sections/departments of the Factory.

- Portable fire extinguishers will be made available of different capacity and types like ABC / CO₂ /DCP / Mech. Foam type etc. at various locations and periodical servicing will be done.
- Fire extinguishers will be located at designated place. They will be mounted on hooks mostly near the entry point of the gate or all along the exit route from where it can be easily reach and approachable.
- Flame proof fitting to be used at various places where required.
- Factory premises will be declared as "NO SMOKING" zone and display of such board at different locations will be made.
- Operators will be given training of fire fighting.
- Fire drills will be arranged periodically
- All employees of the factory will be given training for fire safety.

Other Safety Measures

The following are other safety measures for safety in process & other plant area are as below:

- Formation of EMC & Safety Cell
- Board indicating warning sign
- Training to workers & employees before start of each Shift
- SOP for Handling of machine.
- Quarterly medical check-up for worker and employee.
- Safety Drill & Audit

1.7. CONCLUSION

The study for the proposed project of M/s. Patel Kenwood Pvt. Ltd. at MotiNaroli has revealed that the upcoming activities of synthetic organic resin manufacturing will have

some considerable impacts which would mainly occur only upon accidental spill/leak of chemicals/materials and catastrophic disasters. The major impacts of catastrophic disaster will be minimized by implementing the required hazard prevention & control measures as suggested in RA report. All other impacts of the project will remain far below acceptable limits after necessary mitigation as described & suggested in EIA report. Thus it has been concluded that there would not be any major impacts on environment due to the proposed project except the impacts of emissions and major accident scenarios which may extend out of the plant area.