

To,
Shri Shankarbhai Patel,
Chairman, Green Environment Services Co-op. Soc. Ltd. - CETP, Vatva

Subject: Green Sponsored Research Project on 'Reduction of E-Factor in Dyes and Pigment Industries'

Dear Sir,

It is felt that the performance of CETP is highly depends on of quality of discharge effluent from member units. In general, Effluent of small and medium scale industries contains variety of chemicals. Hence, nature of wastewater generated at a place of member units is very complex. It is possible to reduce pollution load at CETP, if 'Reduction at Source' concept applied in the industry. Herewith, I am proposing project on '**Reduction of E-Factor in Dyes and Pigment Industries**' to explore possibilities to apply green chemistry concepts to reduce waster generation at source in Dyes and Pigment industries.

The E Factor concept played a major role in focusing the attention of the chemical industry world-wide on the problem of waste generation in chemicals manufacture. It provided and continues to provide, the impetus for developing cleaner, more sustainable processes. It is now generally accepted that two useful measures of the environmental acceptability of chemical processes are the *E factor*, defined as the mass ratio of waste to desired product and the atom efficiency. The atom efficiency or atom economy concept is an extremely useful tool for rapid evaluation of the amounts of waste that will be generated by alternative processes. It is calculated by dividing the molecular weight of the product by the sum total of the molecular weights of all substances formed in the stoichiometric equation for the reaction involved. The E factor, in contrast, is the actual amount of waste produced in the process, defined as everything but the desired product. It takes the chemical yield into account and includes reagents, solvents losses etc. A higher E factor means more waste and consequently greater negative environmental impact. The ideal E factor is zero. The larger E Factors in the fine chemical and pharmaceutical industries are also due to the widespread use of classical stoichiometric reagents rather than catalysts. A paradigm shift was necessary to change from the traditional concepts of process efficiency and optimization that exclusively focus on chemical yield of the desired product to one that assigns economic value to eliminating waste and avoiding the use of toxic and/or hazardous chemicals.

Principal Investigator : Dr. Parin Shah
Title of the project: Reduction of E-Factor in Dyes and Pigment Industries
Duration of the project: 2013-2016 (3 years)
Place: Chemical Engineering Department, IT, NU
Budget Estimates:

Sr No	Item	Amount in Rs
1	Recurring cost	
	Chemicals and glassware etc	77,000/-
	Travel	1,50,000/-
2	Non-Recurring cost	
	Equipments	3,00,000/-
3	Miscellaneous	50,000/-
		5,77,000/-
4	Other cost	
	Overhead Expense (20%)	1,15,300/-
	Management Expenses (10%)	57,700
	Total	7,50,000/-

I am expecting your kind cooperation and support in sanctioning the proposed project.

Thanking you.

P. D. Shah

Dr. Parin Shah

Associate Professor, Chemical Engineering Department
Institute of Technology, Nirma University

Chairman
Pic approve

6/9/2013

O.K. filed
06/09/2013



The Green Environment Services Co-op. Society Ltd.

(Common Effluent Treatment Plant & Secured Landfill Facility)

Shankerbhai R. Patel

Chairman

Anandbhai I. Patel

Vice-Chairman (Administration)

Yogeshbhai D. Parikh

Vice-Chairman (Solid Waste)

Rameshbhai M. Patel

Vice-Chairman (MEE)

Bhupendrabhai C. Patel

Hon. Secretary

Jitendrabhai J. Doshi

Hon. Jt. Secretary

Pankajbhai P. Dadania

Hon. Treasurer

Date: 16/8/2018

To,

Dr. Parin Shah

Associate Professor, Chemical Engineering Department,

School of Engineering,

Nirma University

Subject: Approval for Extension of Green Sponsored Research Project

Dear Dr. Shah,

With reference to your request letter dated 23rd July 2018, I am pleased to inform you that we have approved your request for extension of Green Sponsored Project for one year.

You are permitted to work on this project till 5th September 2019 and you are also allowed to use remaining unutilized amount available in this project till 5th September 2019. We do not have any objection in this matter.

Best wishes.

Shri Shankarbhai Patel,

Chairman,

Green Environment Services Co-op. Soc. Ltd. – CETP,

Vatva, Ahmedababd



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