

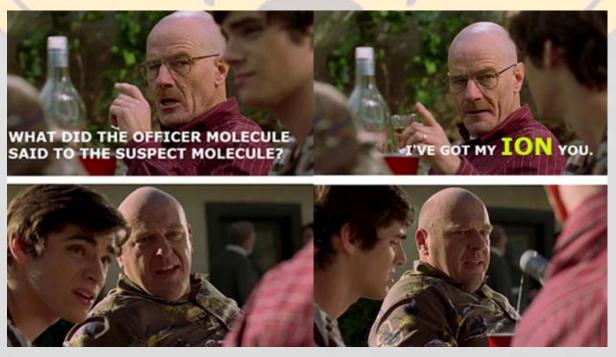
CHEMICAL ENGINEERING DEPARTMENT PRESENTS



12th EDITION
OCTOBER 2014

From the editors' cloud...

Anakkam to all! SPARK is the official newsletter of the Chemical Engineering Department that aims to bring forward the buzz from the department over the past few months. We, the final year students, have come up with the last edition of the newsletter. We thank all the faculty members and fellow students who made this already terrific journey, a vibrant one. We are proud of the achievements of the department and even more so of the enthusiastic juniors who, we expect, would elevate SPARK to greater heights! So, join us as we probe into past memories and try to ignite a little SPARK in your lives!



*The above scene is from the TV series Breaking Bad, where the protagonist is a chemistry professor

Well, it takes some doing to be a chemical engineer alright!

It would take too long to list all the products that are impacted by chemical engineers, but knowing what industries employ them may help you comprehend the scope of their work.

Chemical engineers work manufacturing, pharmaceuticals, healthcare, design and construction, pulp and paper, petrochemicals, food processing, specialty chemicals. microelectronics, electronic and advanced materials, polymers, business services. biotechnology, and environmental health and safety industries, among others.

Within industries. chemical these engineers rely on their knowledge of mathematics and science—particularly chemistry- to overcome technical problems safely and economically. And, of course, they draw upon and apply their engineering knowledge to solve any technical challenges they encounter. Don't make the mistake of thinking that chemical engineers only "make things," though. Their expertise is also applied in the areas of law, education, publishing, finance, and medicine, as well as in many other fields that require technical training.

Specifically, chemical engineers improve food processing techniques, and methods of producing fertilizers, to increase the quantity and quality of available food.

They also construct the synthetic fibres that clothes make our more comfortable and water resistant; they develop methods to mass-produce drugs, making them more affordable; and they create safer, more efficient refining methods of petroleum products, making energy and chemical sources more productive and cost effective.

Chemical engineers also develop solutions to environmental problems, such as pollution control and remediation.

And yes, they process chemicals, which are used to make or improve just about everything you see around you.

Chemical engineers face many of the same challenges that other professionals face, and they meet these challenges by applying their technical knowledge, communication and teamwork skills; the most up-to-date practices available; and hard work. Benefits include financial reward, recognition within industry and society, and the gratification that comes from working with the processes of nature to meet the needs of society.

FACULTY BUZZ



Dr. K. Sathish Kumar

- Karthiga Devi G, **Sathish Kumar K**, Arivalagan K, published a paper on "Microwave assisted nanohydrogels for drug delivery systems", International Journal of pharmacy and pharmaceutical sciences, 2014, 6(4), 118-123 on 7th August, 2014.
- P.Shekar, K. Sathish Kumar, S. Anuradha, M. Radhakrishan, M. Balagurunathan, "Optimization of medium components for antibacterial metabolite production from Marine Streptomyces SP.PUA2 using Response Surface Methodology, International Journal of Pharmacy and Pharmaceutical sciences, Vol.6(7), 475-480, 2014 on 7th August, 2014.



Dr. P. Senthil Kumar

- Dr. P. Senthil Kumar Associate Professor along with our senior Chemical Engineering Students Ms. P. Sebastina
 Anne Fernando, Mr. R. Tanvir Ahmed, Mr. R. Srinath, Ms.
- M. Priyadharshini, Mr. A.M. Vignesh and Mr. A. Thanjiappan published a paper in the title of "Effect of temperature on the adsorption of methylene blue dye onto sulphuric acid treated orange peel" in an International Journal Chemical Engineering Communications (IF: 1.052) on 5th May, 2014.
- Dr. P. Senthil Kumar Associate Professor along with the passed out Chemical Engineering Students Ms. R. Pavithra, Ms. S. Suriya, Mr. M. Ramesh and current final year student Mr. K. Anish Kumar published a paper in the title of "Sargassumwightii, a marine algae is the source for the production of algal oil, bio-oil and application in the dye wastewater treatment" in an International Journal Desalination and Water Treatment (IF: 0.852) on 8th May, 2014.
- Dr. P. Senthil Kumar, Associate Professor has submitted the project proposal entitled
 "A New Novel Cataltytic Reactor System for the Conversion of Waste Plastics into

- Liquid Fuels: Experimental Optimization" to Department of Science & Technology (DST) under Fast Track Scheme, Govt. of India on 26th May, 2014.
- Dr. P. Senthil Kumar, Associate Professor and our senior Chemical Engineering Student Ms. M. Priyadharshini, have published a paper in the title of "Removal of Cu(II) ions from aqueous solution by adsorption onto activated carbon produced from Guazumaulmifolia seeds" in an International Journal "Environmental Engineering and Management Journal, (2014) Vol. 13 (4), pp. 905-914 (IF: 1.434) on 5th June, 2014.
- Dr. P. Senthil Kumar, Associate Professor published a paper titled "Novel Adsorbent from Agricultural Waste-Cashew Nut Shell for Methylene Blue Dye Removal: Optimization By Response Surface Methodology" in American Institute of Chemical Engineers (AIChE) on 3rd August, 2014.
- **Dr. P. Senthil Kumar**, Associate Professor along with the present final year Chemical Engineering Students Mr. C. Prabhakaran and Mr. V. Aditya have published a paper titled "Characteristics of thermodynamic, isotherm, kinetic, mechanism and design equations for the analysis of adsorption in Cd(II) ions surface modified Eucalyptus seeds system" in an International Journal titled "Journal of Taiwan Institute of Chemical Engineers" **(Elsevier, IF: 2.637)** on 16th August, 2014.
- Dr. P. Senthil Kumar, Associate Professor was nominated as a Reviewer for an International Conference on Biomedical Engineering and Biotechnology (iCBEB2014), (to be held on September 25-28 in Beijing, China) on 12th August 2014.



Dr. D. Gnana Prakash

D. Gnana Prakash along with the current final year students Pradeep
 Panneerselvam, Sai Madhusudanan, V. Aditya, published a paper
 titled "Hydrotropic Extraction of Xanthones from Mangosteen

Pericarp", - Advanced Materials Research, Vol. 984-985, pp 372 – 376, 2014, ISSN: 1662-8985 on 13th August, 2014.



Dr. R. Saravanathamizhan Mr. Kilaru Harsha Vardhan



- Dr. R. Saravanathamizhan, Associate Professor, Mr. Kilaru Harsha Vardhan,
 Assistant Professor, Dr. D. Gnana Prakash, Associate Professor, Dr. N.
 Balasubramanian research paper entitled "RSM and ANN modeling for Electro
 oxidation of simulated wastewater using CSTER" has been accepted for publication
 in Desalination and water Treatment Journal on 14th May, 2014.
- Dr. R. Saravanathamizhan, Associate Professor, K. Iyappan, C. Ahmed Basha, N. Vedaraman, C.A. TahiyahNouShene, S. Nathira Begum, published a paper entitled "Electrochemical treatment of tannery effluent using a battery integrated DC-DC converter and solar PV power supply—An approach towards environment and energy management" in the Journal of Environmental Science and Health, Part A on 23rd May, 2014.
- Dr. R. Saravanathamizhan Associate Professor Published a research article on "Comparison of treatment and energy efficiency of advanced oxidation processes for the distillery wastewater" (co authors P. Asaithambi, M. Matheswaran) in International Journal of Environmental Science and Technology. (I.F1.844) on 2nd June, 2014.
- Dr. R. Saravanathamizhan Associate Professor Published a research article on Feed
 Forward Back Propagation Neural Network for the Electrooxidation of Distillery
 Effluent (co authors of P. Manokaran, C. Ahmed Basha, T. Kannadasan) in the
 Chemical Engineering Communication (I.F.1.052) on 6th June, 2014.
- Dr. R. Saravanathamizhan, Associate Professor Submitted a project proposal on "Sulfur Removal from coal water slurry using Ionic Liquid assisted Electrolysis" to the Ministry of Mines, Government of India for the funding on 12th and 13th June, 2014.

Dr. A. Seenivasan

- Dr. A. Seenivasan, Associate Professor and Dr. C. Ravi Kumar, Associate Professor accompanied third year Chemical Engineering students in industrial visit to 'Cetex Petrochemicals' Manali, Chennai on 09.07.2014
- Dr. A. Seenivasan, Associate Professor and Dr. C. Ravi Kumar, Associate Professor accompanied second year chemical engineering students to visit salt refinery unit 'Gujarat Heavy Chemicals Limited', Chennai on 16.07.2014.

Department of Chemical Engineering welcomes the new faculty



Dr. C. Ravikumar

He did his M. Tech from Annamalai Univ., Ph.D. from IIT Bombay, and Post-Doc from New Jersey Centre for Engineered Particulates, USA.



Dr. B. Ambedkar

He did his M. Tech in NIT Trichy, Ph. D. from IIT Madras, Post-Doc in UK- Centre for Applied Energy Research, USA.

ACE Inaugural



The Department of Chemical Engineering hosted the inauguration of Association of Chemical Engineers (ACE) on 23rd July, 2014.

Mr. N. S. Venkataraman, Director of Nandhini Consultancy Centre and Chief Editor of Nandhini Chemical journal presided over the function and presented the key note address on opportunities of Chemical Engineering in various fields. Especially, the chief guest



emphasized on the opportunities for the Chemical Engineers in the consultancy jobs. He also narrated the skill requirement for the core jobs to the Chemical Engineering graduates.

STUDENTS BUZZ

Made hay while the sun shone!

Well, summer interns!

SAINT-GOBAIN





Pradeep P has done a project on *Analysis of fin coolers and to study its effects on various furnace parameters* as a part of his Summer Project Internship at **Saint-Gobain Glass India** from 5th June to 15th July 2014.

Vandana G worked as a research intern IITat **Madras Summer Fellowship Programme** 2014. assisted a PhD project on Waste water treatment using ozonation technique through inverse fluidized bed under the guidance of Dr. T. Renganathan from June 6th to July 6th 2014.



Nandhini V was a research intern in the IIT-Madras' Summer Fellowship Programme 2014 from June 6th to July 6th 2014. The internship focussed on the project titled Hydrodynamic behaviour of two phase solid liquid systems in fluidised bed.



B. Priyadarshini
worked as an intern in
the Fire Protection
and Safety Dept at
McDermott
International
Engineering Services
for a period of two
months, June and July
2014.

Guru A and Lalith Kumar S, final year students, undergone In-plant training at Kothari Petrochemical Limited, Manali, Chennai from 16.06.2014 to 21.06.2014.





Naanmugan R., final year student underwent In-Plant Training at Trichy Distilleries and Chemical Ltd., Trichy from 16.06.2014 to 21.06.2014.



take it further.

Vaishali G, final year student undergone Inplant training at Technip, Chennai in the month of June 2014



Subrejha J, final year student undergone Inplant training at Punjab Chemicals and Crop Protection.

Srivatsan, Suchithra, Surendiran, Tejashwini and **Subhashini** did an internship in Malladi Drugs and **Pharmaceuticals** Ltd, Ranipet, on material science, solvent loss and equipment operation. Their area of focus was the synthetic unit and solvent rectification system.





Vignesh PR and Nihal M did an internship at Reliance Industries, Jamnagar in the month of July 2014.



Abhishek Dutta &
Abishek Narayan, 3rd year
worked as summer
research interns at IIT
Madras during the months
of June. Their field of
research focussed upon
Viscoelastic fluids.



R. Jyotsna of 3rd year participated in the Summer Research Fellowship Programme 2014 hosted by Indian Academy of Science at IISc Bangalore. She worked under the guidance of Dr. Abha Misra on project titled "Synthesis of Graphene derivates" during the months of June - July 2014



Malavikha Rajiv Moorthy of 3rd year undergone an Inplant training at CUMI, Chennai during the month of June,2014.Her area of focus was Analysis of Raw Materials used in the manufacture of Abrasive grinding wheels.





Mathivathani M, of 3rd year undergone In-plant training at TI Cycles during the month of June.







Ayyapan. R, Koushik Balaji, HarishKumar TV, Shiva Subramanian J of 3rd year underwent In-plant training at the Orchid Chemicals, Chennai during the month of June 2014





Vishvesh Sridharan of 3rd year had represented Anna University in the sport of Tennis at the All India Inter-University meet during the month of May. He secured the 3rd place.



Deepthi Suresh,
Prasanna V, Sankar
C,Sharmila Priya, Sri
Surya K, Uthra M,3rd
year students visited
Indian Oil
Corporation, Chennai
as part of the In-Plant
training during the
month of June 2014.



Dr. A. Seenivasan and Dr. C.
Ravikumar along with the students of third year visited the company Cetex
Petrochemicals, Manali as an industrial visit.



Placement talk

GOVEN WINTS

FAQ: Are we

A: Not anymore!

M/S Mu-Sigma Analytics (Bangalore) have hired four of our department students.



(from left) Pritham, Sai Madhusudanan, Anish and Eswar got placed in Mu Sigma

The department of Chemical Engineering congratulates all the 44 students for having achieved placements in Core, Management and Software industries.

LEISURE

LOUNGE

- sit back, unwind and enjoy!

Sidin's guide to the greatest Indian cricketers of all time especially that period between 4 and 6 pm last week

After last week's astounding loss against England, there is a new-found optimism in the Indian camp especially with our younger players coming of age and beginning to complement the senior players nicely. When asked of his feelings about the current Indian team Rahul Dravid stated that there was a new-found optimism in the Indian camp especially with our... you get the drift yeah?

So it is but natural that several young Indians of today, drunk with current glory, lose touch with the glittering past of Indian cricket. India has had a history of outstanding cricketers many of whom have been instrumental in the achievement of a large number of cricketing records by countries like Australia, Pakistan, England, Scotland, Vidharbha etc.

This negligence has to stop and the movement to relive our cricketing past starts with this blog right now. So today we celebrate some of the luminaries who have taken Indian cricket to where it is today in the cricketing record books (i.e. in the "vs." column). This list is by no means exhaustive, authoritative or even authentic, and the author strongly expresses the opinion that you do not try this at home.

List of luminaries with brief biographies, often true. (Part 1)

Ranjit Singhji: One of the first great Indian cricketing heroes. Singhji was "The cricketer formally known as "Prince". His most famous exploits include obtaining a UK visa and work permit and inventing the Leg Glance, a move whereby when friends' sisters walks by in a short skirts you make a sweeping cricket shot action imitation thereby looking at their legs but not getting caught. Famously, Ranjit Singhji once fell ill after a mixing some bad milk in his cup of Darjeeling and could only bowl a single over. In spite of this he got 3 wickets through judicious use of line and length. This is immortalized today in the famous "Corridor of Uncertain Tea". He names lives on to this day in the form of the tournament named after him, the "Coca-Cola Cup".

Gundappa Viswanath: Widely considered the greatest left-handed batsmen from Andhra with a moustache to play in the 60s, in Indian History. Played several crucial test innings for India, many times pulling India back from the brink of complete disaster, taking them to mere comprehensive defeats. He was a daring, brave batsman who stood fearless in the face of the quickest bowlers, primarily because he was blinded by his moustache.

Renowned for his deft footwork, he once, after being bowled for duck, moonwalked all the way back to the pavilion. His first name means "Fat Papa" in Tamil and this ensured constant victory for India against the Sri Lankans who could not bowl at him with a straight face.

Sunil Gavaskar: The first big international Indian cricket star. Scored thousands upon thousands of runs in a career that spanned several millions of balls left outside off-stump.

He was affectionately known as Sunny, the Little Master and that little Prick though the first two were rarely used. He was a tireless team player and inspiring captain who often shouldered a lot of the batting burden and most of the match fees single-handedly.

Gavaskar was a cricketer who patiently waited for the loose ball and once did so for three whole days in a limited overs match before stadium security politely asked him to leave. Gavaskar became the captain of India in 1982 taking on the mantle from Srinivasaraghavan Venkataraghavan, an accomplished cricketer himself, who retired from cricket in protest after it became mandatory to wear kits with one's full name on the back.

Ravi Shashtri: Holds the record for maximum sixes hit in one over with 6 against Tilak Raj in Bombay. Shastri would have hit more but little Tilakhad maths homework and a Social Studies test the next day and we all know how bad 7th standard CBSE is. Shastri was one of our first great all-rounders and once, in a remarkable game in the 1987 tour of Ooty and Coimbatore, Shastri bowled himself around the legs. Ravi Shastri was the heartthrob of millions of women in the late 80s and early 90s and was considered a great looker. This has now been found to be an error due to primitive TV broadcasting technology. He is now a well-known and respected cricket commentator. Fiercely patriotic, he recently pegged India to win all the one-days in the South African tour of Sri Lanka.

Kapil Dev: Explosive with the ball, dynamic with the bat and ridiculous with the English language, Kapil Dev was the life of many humorous post-match press conferences. Dev often stood alone in the face of adversity and dragged India out of tight spots. His 175 run innings in Tunbridge Wells is a classic and some of his shots continue to orbit the Earth to this day bouncing off space stations and interfering with TV broadcasts (see Ravi Shastri above.) Kapil Dev was also one of the first few cricketers to make it big in the world of advertising and synonymous with the caption: "Boost is the secret of my enema. Our enema. (Smile)" Nowadays he is a successful entrepreneur and often appears on TV when he roots for India from his heart saying: "India needs to play the games with the heart and the tactics is nice if then the whole together comes... err... boost is the secret of my enema..."

Krishnamachari Srikkanth: A dynamic one-day player who pioneered the technique of repeated letters in one's name for good luck. Srikkanth was an explosive opening batsman who often stepped out of his crease and swung his bat with great gusto only to be stumped down leg side. He holds the record for maximum consecutives world cups without a haircut (4). Kris Srikkanth was the quintessential South Indian in the team who rapidly learned Hindi while playing for India, leading to an average of well over 4 run outs per match in the process. Today Kris is a passionate cricket commentator who can say "Oh shit, sorry" in over 14 north Indian languages.

Venkatesh Prasad: If Akthar is the "Rawalpindi Express" then for many years Venkatesh Prasad, a key part of the bowling attack, was affectionately called "The Slow Bangalore Passenger That Is Currently Broken Down At Palakkad Station. Passengers approach ticket counter for refund please." Despite several key wickets, Prasad was not a pacey bowler

but instead used a bewildering array of slow, slower and slowest balls to vex batsmen. In the 1992 World Cup he bowled a slow one to Wasim Akram that has not reached the batsman to this day. He was a pioneer of the "Intimidation" school of fielding whereby you do not run for the ball but merely try to stop it by looking at it gravely.

Anil Kumble: Named after the Anil Kumble Circle in Bangalore, where he grew up learning to bowl, Kumble continues to be one of the spinning maestros in the country. However he is not a big mover of the ball but instead unleashes a repertoire of balls so complicated even he does not know what he is doing. He holds the record for having captured 10 wickets in a single test innings but honestly cannot explain how. The author has a particular grouse with Mr. Kumble for having released a shitty cricket video game that the author's brother forced him to buy. The game has graphics reminiscent of a Rohrschach Test and game play marginally more engaging than digging one's nose. Kumble is frequently a useful all-rounder and was the first Indian to achieve the "supreme" double of 400 wickets taken and 4000 misfields.

Sachin Tendulkar: No one makes fun of Sachin. Not even me.

Sanjay Manrekar: Manjrekar is an exciting top order batsman with an amazing repertoire of shots. If you play him in that stupid Anil Kumble game that is. In real life he was often called a text-book cricketer, in the sense that watching him bat was like reading a macroeconomics text book. Sanjay Manjrekar was full of technique and single-handedly developed 2567 ways of padding upto an off-spinner. His moment of glory was during the Ashes Test of 1994 when Imran Khan approached him and accepted defeat as several of the Pakistani players were collapsing from brain inactivity. Manjrekar valiantly declined and went on to score an astounding century in just under a fortnight.

Venkatpathy Raju: With tremendous movement off the pitch especially in windy gusty weather, Venkatpathy Raju is one of the lightest players to have ever played the game. His bowling, on the other hand, was tricky especially because of a complete lack of speed. Raju bowled with such little pace and his ball took so long to come that batsmen often practiced facing him by getting friends and relatives to courier cricket balls overnight to them through local courier companies.

That was the first edition of this special blog series on Indian cricket greats. Hope you enjoyed these brief character profiles and you often burst out, like Azhar, with the words: "Wow!! This I will do for free..." More exciting profiles of Indian cricketing heroes coming soon. Stay tuned.

(p.s. Before anyone gets worked up I know they were all brilliant cricketers and all this is just a joke. Except of course in case of Venkatesh Prasad. So please relax.)

This article was written by SidinVadukut, editor of www.livemint.com. His blog can be found at "Domain Maximus - http://www.whatay.com"



Sidin was born in a small village near Irinjalakuda. He spent the most part of his childhood in Abu Dhabi and came back to India to pursue his higher education. An Engineer from National Institute of Technology, Tiruchirappalli, according to Sidin his father "bought him his MBA" from IIM Ahmedabad. He subsequently worked with the management consulting firm AT Kearney before writing 'Dork'. He currently lives in London, UK.

Sidin will probably be the funniest persons you'll ever get to know. Follow him on twitter (@sidin) to keep in touch with him. He is as eccentric as us.

Easy Crossword Puzzle #9 by Dave Fisher (puzzles.about.com)

Across

- 1. Combines
- 5. Numero uno
- 9. Classic late night

TV

- 12. Field yield
- **13.** Bow
- **14.** Ornamental pond fish
- 15. Instrument
- 16. Uncommon
- 17. Actor Brynner
- 18. Water source
- 20. Pressing
- 22. It's brewed
- 23. Honey maker
- **24.** __ band
- 28. Unruly crowds
- **32.** Afire
- 33. Uses shears
- 36. Boxing great
- 37. You walk on them
- **39.** Evicts, in a way
- **41.** "And __!" (really)
- 44. Kind of gun
- **45.** Orb
- **48.** Dynamite units, usually
- **52.** Wrath
- **53.** Computer contents
- 55. Extinct
- **56.** Average score for Woods
- **57.** Tied

- 58. Notion
- 59. Regular, abbrev.
- **60.** Let
- **61.** The latest
- Down
 1. Behaves
- **A -** 1 11 0
- 2. Lose hold of
- 3. Way in or out
- 4. Shares equally
- 5. Good buy
- **6.** Two or more periods
- 7. Prepare for surgery
- 000
- **8.** Cry of accomplishment
- **9.** Isle of __ (largest of the Inner Hebrides)

- 10. Verb preceder
- 11. Merry-go-round
- music
- **19.** Some kitchen staff wear them
- 21. Jewel
- 24. Santa's helper
- 25. Tell a whopper
- **26.** Polished off
- 27. El ___ (Spanish hero)
- 29. Boat propeller
- 30. Kind of sandwich
- 31. Bro's counterpart
- 34. Country dweller
- 35. Roasting rod
- 38. Definite article
- 40. Ancestry

- 42. Command
- 43. Make a rug
- 45. Drinks slowly
- 46. Kind of fall
- 47. Rancher's concern
- **49.** Secret message
- **50.** Was aware of
- **51.** Seven ___
- **54.** Millimeters in a centimeter?

MAKE MOUNTAIN DEW GLOW. HOW? BE A CHEMICAL ENGINEER \m/

What you need:

20-oz bottle of Mountain Dew™ Glowstick or lightstick Scissors or wirecutters Dishwashing liquid Hydrogen peroxide Baking soda



Make It Glow:

- Pour out or drink all but a small volume of the soft drink (~1/4 inch). If your bottle is empty, add a little water.
- Add a squirt of dishwashing liquid.
- Use scissors or wirecutters to cut the glowstick. (I do not recommend using a steak knife, but if it's all you can find, it will work.)
- Empty the contents of the glowstick into the bottle. I used a pair of tiny inch-long sticks intended for use as earrings, so I just cut them in half and tossed them in the bottle. If the liquid won't flow you can snip the glowstick into pieces and just add the pieces to the bottle.
- Add 1-3 capfuls of hydrogen peroxide.
- Add a pinch of baking soda and immediately seal the bottle.
- Turn out the lights (if you haven't already) and vigorously shake the bottle.
- You probably guessed this, but I'll say it anyway... don't drink the contents of the bottle.
 Keep it out of reach of children or anyone else who might be tempted to drink the liquid.
 Modern glowsticks are nontoxic, but that doesn't make them good for you to eat. Similarly, dishwashing liquid is not edible.

Things to Know:

There's nothing special about Mountain Dew. In fact, you don't even need soda. The glowing red bottle was made using a bit of water (I used too much... you shouldn't be able to see the liquid level), a squirt of dishwashing liquid, a broken red glowstick, a couple of capfuls of hydrogen peroxide, and a pinch of baking soda. You don't absolutely need the peroxide or baking soda either. The project works if you add a little detergent and the contents of a broken glowstick to any near-empty 20-oz bottle.

However, if you add the peroxide and baking soda, you get an immediate bright glow. Enjoy the glow while you can because the chemiluminescence reaction proceeds rapidly. If you use peroxide you will notice the light starting to fade within about half a minute. Avoid contact with the contents of the glowstick. Clean off any residue from your scissors or other cutting tool. If you get any of the product on your skin, rinse it off immediately with warm soapy water.

Disclaimer: MUTUALFUNDINVESTMENTSARESUBJECTTOMARKETRISKSPLEASEREADTHEOFFERDOCUMENTSCAREFULLYBEFORE INVESTING

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EDITORIAL

Students Incharge:

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Pradeep P

Eswar

Poornima

Shreya

Nandhini

Suchithra

Karthik J

3rd year

Jyothsna

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Dr. K. Ramakrishnan

Dr. A. Seenivasan

