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Cover Story



Webinar on 'Safety Measures for the Colorant Industry'



The Colour Solution Company

An ISO 9001: 2008, ISO 14001:2004, OHSAS 18001:2007 Compnay In house R&D Unit Recognized by Govt. Of India, DSIR, N. Delhi Govt. Recognized Export House

Devarsons Industries Pvt. Ltd.

441 GIDC, Odhav Ahmedabad 382 415 India. www.devarsons.com



DMAI Newsletter

Published by

S. Balasundaram Executive Secretary

The Dyestuffs Manufacturers Association of India

A-317, 3rd Floor,
Antop Hill Warehousing Complex,
Vidyalankar College Road,
Near Barkat Ali Naka,
Wadala (East), Mumbai- 400 037
Tel Nos.: +91 22 24158156/8157
Fax No.: +91 22 24157374

Email: dmai@vsnl.com
Web: www.dmai.org

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Colour Publications Pvt. Ltd. Tel.: 2430 6319 Email:colorpub@colorpub.in

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Exporters of Dyes, Pigments & Chemicals

(Powder, Liquid / Pigment Dispersions & Press Cakes)

Paper Chemicals, Textile Auxiliaries, Optical Brightening Agents & Defoamers



Dyes & Chemicals



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202-205, 2nd Floor, Dhoot Business Centre, Plot No. 74, R. B. Mehta Marg, 60 Feet Road, Ghatkopar (East), Mumbai - 400 077, Maharashtra, India.

Tel.: +91-22-25080033 / 44 / 66, +91-22-25080606 / 0909 • Fax : +91-22-25080055 Sukesh Shah - +91-98201 53399 / Chaitanya Shah - +91-98206 53377

Email: sukesh@bhavnacolourants.com/chaitanya@bhavnacolourants.com

Website: www.bhavnacolourants.com

Editorial Board

Editorial



Mr. Ram Ajekar Honorary Editor



Rtn. Virendra Widge



Prof. Vinod Kanetkar



Mr. Vinit Shah



Mr. Sandeep Shah

Dear Readers

When we communicated with you all last time, we were hopeful that we would reach you all this time on a happier situation and that too through print media on a quarterly basis as in the past. However, that was not to be. The second wave of covid-19 pandemic turned out to be much more devastating reaching this time even smaller cities & villages inflicting miseries by adversely affecting lives & livelihood of a large population more so in case of poorer Sections of the society. It is really commendable and heartening to note that scores of NGOs, corporates & individuals rose to the occasion and helped lakhs of people with free distribution of food, medicines, hospitalisation and other assistance. Let us also salute and express our profound gratitude to our frontline warriors who performed their duty admirably risking their own lives so that we all remain safe. Let us also pray for the souls of all those who lost their battle against covid to rest in peace. Though there is a fear of even a third wave of the pandemic raising its head towards Sept/Oct this year, with the rapid large scale vaccination program in process on a war footing, its impact, if it happens, is expected to be minimised.

The annual budget presented on 1st Feb 2021, taking into consideration the urgent need to mitigate the hardships caused to the poor and lowincome groups and the economy in general, made huge financial allocations to several sectors like health, infrastructure such as highways, railways, power, water supply, rural development, education, agriculture etc. The infusion of such huge funds is expected to reach an additional over one core beneficiaries helping to sustain consumption and thereby demand for goods and services. It was also announced that several mega textile parks will be developed which when implemented will benefit our colourants industry as well. As these allocations will obviously result in huge revenue shortfall, the Govt. intends to go for an ambitious divestment program of the public sector undertakings.

The New Year 2021 ushered in with continued recovery of global economy lead by USA, Europe, China, and India as well. India's manufacturing and service sectors witnessed robust growth. The month of March recorded very high GST collection on account of all round improvement in the economy. Exports also achieved record growth.

The reversal of a healthy and steady rise in India's economic growth due to second wave of the pandemic is expected to be of a short-term nature. The resilience of our economy and the people at large helped by the decline in the covid cases will surely result in a major turnaround. The experts are of the opinion that as against negative growth for FY 2021, the current FY 2022 will move to a respectable positive growth rate avenue. The consumption is expected to rise rapidly partly on account of pent up demand. Some experts have even opined that on account of the above favourable factors and also the huge fund allocations by the Govt. to various sectors getting utilised in a couple of months, India's GDP growth rate is likely to reach No. 1 position in the world surpassing even China.

Despite Inflationary pressure, RBI did well by keeping the interest rates unchanged even in the last policy review in June. RBI also introduced measures to infuse an additional liquidity of Rs.1.5 lakh crore to banks for lending to certain covid affected sectors including MSMEs.

The performance of our colorants industry, in sync with that of general economy, did fairly well in the last two quarters of FY 2021, and is now again facing severe demand crunch. However, the demand is projected to pick up from Sept/Oct onwards.

We in the editorial board wish you all a financially more rewarding FY 2022 and also best of health and happiness.

Ram Ajekar Honorary Editor



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MOBILE: +919978993199 / +919820093199

info@sunglobal.net/www.sunglobal.net/www.suncolorants.com

President's Page



This being my first Presidential message in 2021, at the outset, I extend my greetings to all of you and your family.

As you are all aware, the second wave of COVID 19 pandemic has caused unprecedented hardships to the humanity all over the globe. It has accounted for about 40 lacs precious human lives in the world. The physical and mental sufferings of the citizens are immense. There seems no end to the spread of the pandemic in the present context. The silver lining in this difficult phase is receding of the second wave in many parts of the world during the last few days.



In our own country, pandemic has also played havoc among its populace causing innumerable and untold sufferings. More than 4 lacs people have perished. The most satisfying feature in this grave situation is vaccination of two shots, which has already been administered to around 290 million people. With many candidates for the vaccines available in the country now, including foreign imports and necessary infrastructure, it is expected that the spread will be soon arrested to a great extent. Apprehensions about ill effects of inoculations are unfounded and unwarranted. I exhort to all the eligible members and their families to get themselves vaccinated, which will be a great immunity to prevent its spread.

Many of our members have also been affected by the pandemic and the subsequent lock down both emotionally and financially. It is the time now for adopting prudent strategy to reduce the losses in the remaining months of the current fiscal and in the days ahead.

On the Association front, I am happy to inform you that despite the closure of the Secretariat for more than 3 months or so, many vital issues concerning the colorant industry like inclusion of the forex in the essential services list, sudden and abnormal rise in the prices of basic raw materials like Acetic Acid, Aniline etc. were taken up with DCPC for necessary redressal. I am glad that these issues have been favoubly considered by the concerned authorities.

As pointed out by me in my last message, some of the recent accidents in the chemical sector have not only caused many a human loss, but also the production operations leading into much financial loss. To prevent such accidents in the colorant industry, I am happy to inform you that a webinar on safety measures for the colorant industry has been organized to educate our members to prevent such calamities in future. The first part of the Webinar was conducted on 21st June 2021, which was addressed by Mr. Adnan Ahmad, Head of Country Cluster India, Clariant India on 'Leadership and Safety - Why you can't have one without the other in our industry' and Mr. Vijay Bhujle, Director and Senior Vice President - Technical, GVS Cibatech Pvt. Ltd., on 'Importance of MSDS, Handling and Storage of Materials and Aspects of Process Safety'. I am sure all the participants have benefited from their expert advice and suggestions for safeguards to prevent accidents in their plants and work places. The date and timings of the second part of the Webinar will be conveyed to you in due course.

In the backdrop of receding of the pandemic with strong vaccination drive and relaxation of lockdown measures in many parts of the country and the world, I am sure the dark days are behind us. We can hope for better days of progress and prosperity in the coming days. I wish all of you to stay safe and healthy.

Webinar on 'Safety Measures for the Colorant Industry' organised by DMAI on 21st June 2021

here have been unfortunately many accidents in the chemical sector in the recent past resulting into loss of quite a few precious human lives and production. In some of these incidents, it is reported that human error was the main cause culminating into the accidents. Had precautionary and other safety measures taken adequately, perhaps the accidents could have been prevented.

In the above context, the precautionary and safety measures have become more focused and pronounced to avoid / prevent such unfortunate incidents in the chemical sector as a whole. It has hence become imperative for the operational personnel and staff to have adequate knowledge and

skill so as to engage themselves in the working operations without much hiccups and run the plant more efficiently and effectively without much scope for calamities.

In this scenario, the first part of the Webinar on the 'Safety Measures for our Colorant Industry' was organized by DMAI on 21st June 2021 thru. Video conference. About 55 members participated.

The Webinar commenced at 3.00 P.M. President Mr. Janak Mehta presided. The proceedings were moderated by Hon.Secretary Dr.Shavak Bhumgara.



Dr. Shavak Bhumgara



Janak Mehta

In his welcome address, Mr. Janak Mehta stated that in the Atmanirbhar Bharat Abhiyan, it has become necessary to import certain products for local production. These chemicals have to be confirmed for their genuineness and technology for safe and sustainable operations on floor.

To achieve US\$5 trillion growth by 2024, the colorant industry is recognized as the most important and focused industry along with agro and pharma industries in the chemical sector by the Ministry of Chemicals & Fertilizers, GOI. The industry has captured 16% global market of the

colorants and is very much on its forward march in its progress, despite the COVID-19 pandemic, which has created much hardships to the humanity and the economy of the country due to prolonged lockdown measures clamped by the authorities in many parts of the country.

Safety forms nucleus of the operations and safe working culture plays a significant role in this regard. Reputed and very experienced speakers with their topics, included in this first part of the Webinar will debate on the subject for the benefit of the members and their operations in the plants and workplace to the maximum extent possible, Mr. Mehta quoted.

Prof. Prakash Bhate Managing Committee member, introduced both the speakers to the audience.

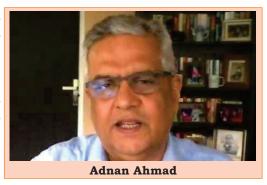


Prof. Prakash Bhate

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Mr. Adnan Ahmad, Head of Country Cluster India, Clariant India in his address thanked DMAI for inviting him to be a speaker for the Webinar on 'Leadership and Safety - Why you can't have one without the other in our industry'. He emphasized the need for safety aspects in the chemical sector. Instead of a power point presentation, Mr. Ahmad felt that it would be better for him to express his views in direct contact with the audience. He preferred more and more interaction with the participants with their queries, which he would clarify at the end of his talk.



Investment in the safety is also imperative like any other investments for the growth of the industry, notwithstanding the cost element. Human lives are much more precious than any other aspect. Their safety should be accordingly given top most priority, which will be an investment for future growth. Safety is to be considered as a priority not only in the corporate sector, but also equally important in the MSME sector as well.

Mr. Ahmad complimented the regulatory authorities for various forward looking regulations in the industry. Safety is also under the purview of the regulatory authority, which should be enforced stringently to avoid any calamities to human life by preventing accidents as far as possible.

By quoting a few cogent and relevant examples from his vast experience of working with many multinational companies during his career, Mr. Ahmad propounded certain important mantras for the safety measures, which should be strictly adhered to. He elucidated the same for the benefit of the participants.

According to Mr. Ahmad, the first and foremost ingredient is 'Walk the Talk". It is of paramount importance for the top ranking officials in the unit to have free and open talk with the employees on the floor on a regular basis during their early visits to the plant through interactions. Every employee should be made aware that he is also one of the important workforces of the organization. Their problems should be critically analyzed and remedial action should be implemented forthwith. This will give a boost to the employee's confidence to work efficiently in a safe environment.

Mr. Adnan further cautioned that it is unwise to conclude that accidents will never happen again once occurred. It is, therefore, absolutely imperative to recognize the faults at the initial stages itself and accordingly plug the loopholes once noticed without any loss of time. It is also a better option to investigate the matter through some outside agency for their expert advice for remedial action. Investment made in this critical area should not be construed as an expense, but an investment for future, he added.

In order to have zero injury working environment, it is the onerous responsibility of the top managements to create a collective team from different segments, instead of fixing the responsibility soley to the Safety Manager. Training should be also imparted to all the members of the Safety Committee, irrespective of the department, which they head.

Input safety is another important tool in prevention of accidents, Mr. Ahmad averred. It is also worth considering to award the concerned personnel in the unit for deploying adequate safety measures in the plant and workplace to boost the confidence of the plant operators.

In conclusion, Mr. Ahmad emphasized that safety leadership is the prime responsibility of all the personnel at various levels. Transformation of mindset and firm commitment in this regard will definitely inculcate safety aspects in a unit irrespective of whether it is in large scale or medium scale, Mr. Ahmad Adnan concluded.

In the question answer session that followed, Mr. Ahmad replied to all the queries of some of the members to their satisfaction.

Mr. Vijay Bhujle, Director and Senior Vice President - Technical, GVS Cibatech Pvt. Ltd. Mumbai, in his presentation on 'Importance of MSDS, Handling and Storage of Materials and Aspects of Process Safety' initially thanked and complimented DMAI for organizing the novel and important webinar on the Safety Measures, which have become very pronounced in the present complex situation. Mr. Bhujle cited quite a few accidents that have taken place in the chemical sector in the recent past thru. power point presentation. He also analyzed the causes for mishaps, which in most of the cases have taken place due to human error in



the operations at the plants and workplaces. Had some precautionary measures and safeguards taken by the concerned authorities timely, he felt such catastrophes could have been averted.

Accidents in chemical plants have a high potential threat because of the dangerous substances that are handled. In a runaway situation, the threat is even bigger as a substance is reacting during the event many times in an unexpected way. This means that besides a big release of energy, the release of dangerous substances which takes place may be difficult to control. Hence, one has to take care of chemical substances (storage and handling), their reactions and the work up of operations (distillation, filtration, drying, and milling). For safe operation, one should know whether,

- 1. The chemicals handled are hazardous?
- 2. Nature of reaction (heat of reaction, onset decomposition, gas evolution, etc.)
- 3. Thermal stability and dust properties of the product for safe work up.

How to Determine, if a Chemical is "Hazardous"

Any chemical that is classified as a physical hazard, a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified is considered a hazardous chemical. The HCS (OSHA guideline) definitions for physical hazard and health hazard are:

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

Health hazard means a chemical that is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

Storage and Handling of a chemicals is also important based on its thermal stability and reactivity.

All of this information can be gathered from good MSDS. GHS compliant MSDS will give updated and likely to give comprehensive information regarding the material properties. Based on this information one can decide on safe handling procedures and right PPE. It is necessary to decide on safe storage and handling methods based on the data from MSDS.

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Hazard evaluation during the process

Large companies use robust hazard assessment methods (including sophisticated experimental techniques) and extensive management systems to avoid chemical accidents. However these best practices including basic concepts and methodologies are not known to most of the SMEs.

Hazard evaluation has following steps

- Definition of process and plant characteristics
- Identification of hazards at normal operating condition
- Identification of possible deviations and hazards associated with them
- Evaluating suitable conditions in order to carry out process safely.
- Taking the necessary measures (operational or technical) in the plant.

Evaluation of the hazards can be now done with small scale testing. Various instruments have been developed over a period of time and are now available to generate data required for risk analysis. Some of these are mentioned below.

- **1. DSC/DTA -** (Differential Scanning Calorimeter / Differential Thermal Analysis) sample size mg Gives heat of reaction and onset of decomposition
- 2. Carius Tube Test,- sample size-few grams
- **3. TSU (Thermal Screening Unit) -** These two instruments give onset of decomposition and pressure generation data
- 4. Seteram C80 High Sensitivity Calorimeter sample size-few grams
- **5. RC1** -Reaction calorimeter- sample size -few hundred grams.

This will give heat of reaction and heat evolution rate during the course of reaction. Systematic way to evaluate hazards for small scale units can be as follows (Stage 1), check whether any of the raw materials or products are explosive/high energy or toxic in nature. If high energy material, then find out decomposition temperature and energy. If not in literature, get a DSC test to get this data.

Thumb rule is that if the heat of reaction is less than 100J/g, reaction is mildly exothermic. If it is above 400J/g, the reaction is considered as highly exothermic and medium if the values are between these two limits. One need not study further if the reaction is mild and no gas evolution is taking place.

(Stage 2) If it is highly exothermic then carry out the reaction calorimetric test. This will give the heat generation rate and an estimate of the accumulation of reactants during the reaction. Based on this one can suitably design the reactor for the reaction. If gases are evolved during the reaction suitable scrubber system should be provided.

(Stage 3) Next level safety is to find out possible deviations during the operations and their impact on the course of a reaction. The most common deviations are a cooling failure, a wrong sequence of addition, wrong material charged contaminations, etc. One has to then find out whether any of these can give rise to uncontrolled reaction using suitable risk analysis methods.

In conclusion, Mr. Bhujle stressed that SME's can follow these steps to arrive at safer operating processes. In the interactive session, which followed, Mr. Bhujle clarified all the queries of some of the members. Dr. Shavak Bhumgara proposed a vote of thanks. He was sanguine that the participants will give much more importance and attention to initiate the measures and safeguards well explained by the speakers in their presentations. The date and timings of the second part of the webinar with full details shall be conveyed to the members in due course.

Newly Renovated Process Innovation and Research Laboratory of Specialty Chemicals Technology Department at ICT

Mr. Harsh Patel and Mr. Mahesh Gore

Speciality Chemicals Technology Department, ICT, Matunga, Mumbai

he department of Specialty Chemicals Technology (formerly Dyestuff Technology), has recently built its new state-of-the art laboratory building with the courtesy of M/s. Colourtex Industries Pvt Ltd. The two storeyed facility with a total area of 8200 sq. ft. consists of the Research laboratory, the Process Intensification Laboratory, the Analytical laboratory and the Instrumentation Laboratory, for Undergraduate and Post Graduate students; thus, building a strong sense of industrial working culture in them. It is equipped with all the essential safety equipment such as safety showers, eye washes, smoke detectors and fire extinguishers.

The earlier laboratory was very old and was completely dilapidated. This pilot plant laboratory was built in 1950's and has a history of giving birth to various industries including Indian Dyestuff Industries. It was necessary to completely rebuild the laboratory.







Few photographs of old laboratory

M/s Colourtex Industries Pvt. Ltd has supported the complete renovation of the laboratory with generous donation.

The new laboratory has a mini pilot plant, analytical laboratory, Instruments laboratory and research laboratory.

Analytical Laboratory and Research Laboratory

The analytical laboratory is designed in 2000 sq. ft. area having ultra-modern facility for wet chemical analysis for the undergraduate and post graduate students.



Special Feature





The research laboratory has been built with ultra-modern facilities such as fuming hoods, eye wash sprinkler, water shower, emergency exit door, and suction with gas scrubber and chemical storage room. The fuming hoods are for keeping hazardous reactions and the lab is fitted with efficient exhaust removal system and air-conditioned ventilation system to avoid unease to the researchers working in the laboratory. Eye water sprinkler is installed for washing of eyes in case of any injection of fumes or vapours and water shower for any spillage of hazardous compounds. In case of any emergence fire, the provision of an emergency exit door has been made. The exhaust gases from the laboratory are sucked out using a high-pressure vacuum pump and the vented gases are then sent to a scrubber unit which is fitted with demister to neutralize the gases and release non-toxic ones. The chemical and solvent storage cupboards are built with safety features which automatically locks the cupboards in case of any fire and safely hold the chemicals for 90 minutes.



Process Intensification Laboratory and Instrumentation Facility

The pilot plant laboratory is designed for performing pilot scale reactions which will help the department to build a strong connect with the industry and will attract many industries to collaborate with the department for new and innovative research and develop intensified processes. To support this research, the lab is equipped with all modern instrumentation such as Gas Chromatograph(GC), High Pressure Liquid Chromatograph (HPLC), UV-VIS spectrophotometer, Fluorimeter , 500 MHz NMR spectrometer, Thermogravimetric Analyser (TGA), and Fourier transform infrared spectroscopy (FTIR).



About M/s Colourtex Industries Pvt. Ltd.

Founded in 1967 by the present Chairman and Managing Director Mr. Jayantibhai Jariwala, Colourtex ventured in to dyestuff manufacturing in 1976 with a modest set up in the industrial suburb of Surat, Gujarat. Colourtex had a turnover of Rs. 4082 cr. in the financial year 2020. Today, the manufacturing capabilities at Colourtex are unmatched with product mix of over 750 dyes from an annual installed capacity of 142,000 tons of dyes per annum.

Colourtex, today, is the single most dedicated and by far the largest dyestuff company engaged in serving the textile and leather industry in the Indian subcontinent.

Colourtex has sound infrastructure – 600000 M3 soft water reservoir, 7.5 MW cogeneration gas based turbine, 15 MW renewable energy generation from wind mills and solar plants, 18 hectares of dedicated solid waste disposal site, strong backward integration (120,000 tons of dye - intermediates & speciality chemicals) built over past four decades.

Colourtex aims at getting recognized as most innovative dyestuff company focusing on providing eco-friendly solutions to the textile world and developing product and technologies that improve fastness properties and having excellent ecological profile with better economics. An uncompromising attitude of its Chairman to environmental and ecological priorities in dyestuff manufacture & applications lends Colourtex a promising futuristic vision.

Colourtex is Responsible Care company, ZDHC contributor, Bluesign system partner, ETAD member, LWG member which demonstrate its commitment for sustainable development with utmost care of environment and ecology.

"Indian colorant industry is poised for significant growth to meet domestic & international demand"

(Article by Mr. Janak Mehta, President The Dyestuffs Manufacturers Association of India for "Chemical Engineering World" Anniversary Issue).

olours are an integral part of human perception and life, which add to the very existence and intrinsic value of human life. Natural and vegetable colors were in use for centuries in India prior to invention of synthetic dyestuffs. The well-developed textile industry in India soon started use of synthetic dyes. India slowly emerged as an exporter of dyestuffs and intermediates, particularly in Reactive, Acid, Direct & Vat Dyes and some key intermediates.

Colour has an inherent element of value addition to a wide variety of products like textiles, leather, paper, food products, cosmetics, plastics, paints, inks etc. and thereby is a key ingredient, very vital for the growth of the Indian manufacturing sector.

During the last few decades, there has been a notable transition in the global arena in the manufacturing base of colorants with a marked shift in production from Europe, USA and Japan to Asia viz. China, India, Taiwan, Thailand, Indonesia etc. There has been an appreciable transition in the global market in the manufacturing base of colorants with an apparent shift in production to Asian countries. In this context, China and India are now preferred destination for supply of the colorants in the global market. There are about 950 units in our country of the dyestuff industry comprising 50 units in the large and organized sector and 900 units in SME sector.

Market Dynamics

The world market for the colorants comprising dyes, pigments and intermediates is presently estimated at USD 37 Billion. The industry has been growing at an average rate of 2-3% p.a. of the global trade during the last decade. In the prevailing context of focused concern for Safety, Health and Environment (SHE) and other regulatory measures like REACH, banning of hazardous substances etc., there is much scope for the Indian Dyestuff Industry to excel and increase the quantum in the world market. A consorted effort from all concerned in this direction is the need of the hour.

Colorants Industry in India

Presently, Indian colorants industry is one of India's leading foreign exchange earners. It accounts for almost 16% of the colorants' global market, whereas India's overall share in the global trade is about 1%. The size of the Indian colorants industry is almost USD 5.2 Billion. We have estimated our target that the colorant industry must achieve 25% of the global market in the next few years. Though there was an enviable growth over the last few years, it was unfortunate that due to the COVID pandemic and consequent lock down measures in many parts of the country, the production and growth of the colorant industry was much hampered over the last few months. In fact the exports dropped to USD 0.23 Billion for the last 4 months of the current fiscal. It is estimated that there could be a contraction of 40% of the turnover during the current fiscal. This aberration will be overcome once normalcy is restored post pandemic times.

As far as the colorant industry is concerned, demand for the domestic consumption is more or less met from the local manufacturing. Imports are very much restricted, as domestic production is to a great extent self-reliant for meeting the same. The thrust is now more for promotion of exports.

The intermediates manufacturing activity is also to be encouraged and strengthened, as substantial share of intermediates are now imported. In the Atmanirbhar

Bharat Abhiyan, domestic production of intermediates will significantly reduce imports and encourage indigenous production and save much forex.

Accelerating Growth & Innovation

There is much room for the industry to invest in the field of research and development on an ongoing basis. Since fashion and preferences change almost every day, the industry has also to adapt to the changing trend in

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the production of colorants. Having understood the need for development of the colorants based on the latest technology all over the world, DMAI has, since 2005, been organizing Convention on Colorants jointly with the Institute of Chemical Technology, (ICT) Mumbai and supported by the Government of India on an biennial basis. Eminent scholars and research experts from all over the world are invited to deliberate and share their knowledge in the field of technology so that the industry will be able to cope up with the changing trends to capture maximum mileage. Nonetheless, upgradation of R&D on a regular basis is a must so as to maintain the undisputed destination of colorants from the Country. The Industry has taken many steps to reduce pollution. Industry also recognizes the importance of this and many responsible forward looking and socially concerned manufacturers have started the process of reducing pollution both at the manufacturing stage and at the end of the pipeline. Even the CETPs have improved their performance to a great extent in this regard.

Green Chemistry is another area, which the industry considers as a paramount one towards protection of natural resources from destruction and saving the future generation from the ill effects. Towards this end, DMAI has been organizing Seminars at frequent intervals with the support of the Government of India. In fact, two such seminars were already conducted in Mumbai to educate our members by adopting Green Chemistry in their manufacturing process, wherever possible. In COC too, these issues are given their due importance and accordingly a couple of sessions are dedicated to the same.

In the above context, the colorant industry is poised for significant growth in the coming days with the support and co-operation from the Government, as the industry is self-reliant not only in meeting the local demands, but also catering to international demands through exports.

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Corporate Tax Rates in India in 2019

Jasbir Singh

Industrial Advisor(Retired) Department of Chemicals & Petrochemicals jsinghconsultant@gmail.com

ndia is strengthening the entire eco- system to achieve the objective of becoming USD 5 Trillion economy by 2024-25 through rapid structural reforms in agriculture and through liberalization ▲ measures in manufacturing sector etc. The level of Indian economy during 2019-20 is assessed to be of the order of USD 2.9 Trillion. The manufacturing and agriculture sectors shall contribute USD One Trillion each, while the contribution of service sector has been estimated to be at USD The manufacturing sector comprising of automobiles, telecom, electronics, metallurgical, chemicals & petrochemicals, fertilizers, pharma etc. shall contribute USD One Trillion in the forecast made by the Govt. The manufacturing sector to work in tandem to bring a quantum leap in our quality of industrial products, achieve maximum productivity / efficiency, to install greenfield and brown projects of world class capacities to become internationally competitive, so that Indian industry can truly expand their export basket, making it bigger and broader by developing customized products for foreign markets, without much dependance on imports.

Percentage of comparative Corporate Tax Rates of India in 2019 with neighboring countries is as under:

Sr.no	Name of the country	Corporate Tax Rate		
1	India	For new manufacturing companies 15%		
		Reduced Tax rates for existing companies 22%		
2	Hong Kong	17%		
3	Thailand	20%		
4	Vietnam	20%		
5	USA	21%		
6	Malaysia	24%		
7	China	25%		
8	Indonesia	25%		
9	South Africa	28%		
10	Mexico	30%		
11	Brazil	30%		

Corporate Tax revenue collections during 2019-20 stood at Rs. 6.78 Lakh Crores.

Effective Tax rates in India, including surcharge and cess are 17.6% for new manufacturing companies and 25.16% for existing companies not claiming prescribed deductions / exemptions.



Some of the implications of new corporate Income Tax rate deductions are as follows:

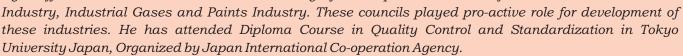
- Effective CIT rates have been slashed for existing domestic companies from 34.94% to 22% from FY 20 onwards.
- For new domestics companies set up on or after 1st October 2019 and commencing manufacturing before 31st March 2023, the applicable CIT rate is 17.16%.
- For domestic companies opting for concessional rates, certain exemptions, deductions and allowances (including additional percentage depreciation) will not be applicable. Minimum Alternate Tax (MAT) will not apply in this case and accumulated MAT credit cannot be utilized.
- The effective MAT rate for domestic companies not opting for the concessional tax rates has been reduced from 21.55% to 17.4%. They will continue to enjoy the benefit of specified deductions / incentives where applicable.

Remission of Duties/ Taxes on Export Product

Govt. has approved remission of Duties/Taxes on exported products. Such duties and taxes shall be remitted to an actual rate. This policy initiative is expected to create a level playing field for Indian exporters of manufactured merchandise and make Indian made merchandise cost competitive in the international market. Dividend Distribution Tax has also been abolished. It may be seen that Corporate Tax Rates in India are lower as compared to other neighboring countries which may facilitate to attract domestic and foreign investments.

Biodata of Jasbir Singh, Industrial Advisor(Retired), Department of Chemicals & Petrochemicals

Mr. Jasbir Singh holds a degree of Master of Science (M.Sc) in Chemistry from Punjab University . After joining the Govt. service, he served the Ministry of Industry from 1975 to 1994 where he was responsible to look after the industrial licensing , Foreign Collaboration proposals, Trade Policy Issues, Foreign Investment Proposals, Import replenishment issues in respect of Paints and Pigments, Mineral based industries, Dyestuffs etc. He worked as Member Secretary of Development Councils of Cement



Mr. Jasbir Singh worked with Department of Chemicals and Petrochemicals from 1994 to 2020 looking after development and growth of Organic/inorganic, Pesticides, Dyes, Alcohol based industries on sustainable basis. He has attended advanced training course in implementation of Chemicals Weapons Convention(CWC) held in Netherlands. He acted as Leader of Indian team for OPCW inspections held in India. He participated three times year-wise in Regional Workshops on CWC held in Seoul, Korea R.P. He has attended Executive Council meetings arranged by OPCW. Mr. singh was appointed as Member of International Chemicals Review committee By GOI under Rotterdam Convention and participated in its annual meetings held in Geneva. He attended Stockholm Convention Meetings held in Bangkok, Thailand to discuss new candidates. He attended REACH negotiation committee meetings held in EU(Helsinki). He has widely travelled abroad to countries like Thailand, Korea R.P, Netherlands, France, U.K, Japan, Vietnam, Switzerland, Finland etc. to attend meetings on various issues of sustainable growth of Chemicals Sector. His latest assignment is to work as Regional Advisor in the office of Dyestuffs Manufacturers association of India, which is the apex body to look after the growth of Dyes Industry.



Countries with current Foreign Exchange Reserves

Name of the Country	Foreign Exchange Reserves in \$ Billion
China	3198
Japan	1295
Switzerland	1072
Russia	606
India	600
Taiwan	541
South Korea	452
Singapore	398
Brazil	351

FDI Inflow in Chemicals Sector

Year	FDI inflow USD In Millions***
2014-15	763
2015-16	1470
2016-17	1393
2017-18	1308
2018-19	1981
2019-20	1058
	Cumulative inflow from April2000 to June 2020 is to the extent of USD 17775 Million which calculates to 3.7% of the total inflow
	***Source:DPIIT Website(FDI Publication)

Industrial, Foreign Direct Investment and Trade Policies are completely liberalized except for few chemicals attracting issues of international conventions. Industrial, FDI and Trade Policy are formulated on long term basis having inbuilt vision to attract investments, to expand trade of required commodities and ease of doing business.

Indian Customs Duty rates are stable and compares favorably with other ASEAN countries. Despite having stable political environment in India and in spite of above tax incentives, mega foreign direct investments are not finding India as an attractive destination in chemicals and petrochemicals. State issues are more bottlenecks such as land acquisition for setting up the manufacturing facilities which need to be resolved for expeditious implementation of the greenfield and brownfield projects. 'Single Window Approval' concept including state/central laws need to be effectively implemented by designated Central Govt. Ministry for new/expansion projects for providing ease of doing business to the domestic and foreign investors.



Company News



Innovative packaging solutions to ensure End-to-end cargo protection

Clariant's CONTAINER DRI® II Cargo Desiccant & DESVOCANTTM VOC ADSORBENTS help address critical challenges faced during intermodal transit

ne of the basic requirements for the shipping industry is to ensure that the cargo is delivered undamaged to the customer. However, conditions such as exposure to moisture and build-up of volatile organic compounds (VOCs) during transit and storage over extended periods can make this challenging. Moisture can induce corrosion, development of hygrostresses, mold, mildew, spoilage, and warping, among others, during shipping, thus affecting the quality of the product. In fact, as per the Eurolog Packing Group, nearly 10% of containerized goods are discarded due to moisture-related damages. Container shipments carrying finished goods are highly susceptible to a phenomenon known as 'Container Rain.' High humidity due to increased

proximity with the ocean causes air to get trapped in the container. As the air in the container settles, the moisture condenses in colder areas of the container, which may then breach packaging,

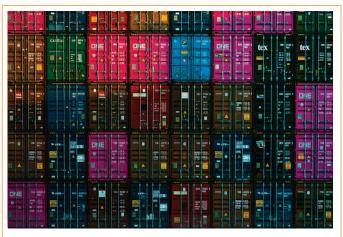
thus putting the quality of the product at risk.

Clariant's CONTAINER DRI® II, a range of specially designed calcium chloride-based cargo desiccants, protects cargo during shipping by aggressively absorbing moisture from the air and reducing the dew point temperature or condensation point, thereby reducing the probability of 'Container Rain.'

Conventional desiccants are frequently used as a one-stop solution for all packaging issues with regard to transit protection. However, while most of the current solutions are designed to tackle moisture-induced damage, other alternatives meet the



specific requirements of intermodal transit and delivery systems. Clariant's EcoTain® labelled CONTAINER DRI® II, is based on an advanced formula that is non-toxic and Dimethyl Fumarate Free (DMF), which can absorb up to three times its weight in moisture, and trap it as a thick, nospill gel enabling the protection of shipments from start to finish, through all temperature ranges and relative humidity variances. Moreover, it offers an absorption capacity of greater than 400 % per bag at 95 % rel. humidity and 40 °C. Further, it continues to reduce the relative humidity throughout the transit, thus controlling the dew point temperature even further to avoid the Container Rain. The CONTAINER DRI® II range also includes several configurations to best fit different needs and modes of transport.



Another challenge prevalent in individual product packages and containerized shipments of products is the build-up of volatile organic compounds (VOCs) due to off-gassing. VOCs can occur when chemicals in plastics, solvents, or adhesives are released during or after manufacturing of a variety of common products. VOCs that are toxic in nature may emit odours, such as "the new smell" or no odour at all. When packages or boxes containing goods such as a pair of shoes, handbags, foam mattresses, furniture, carpeting, toys, or textiles are opened for product inspection or unloading, the sudden release of accumulated VOCs can pose health

Company News

risks to people. High VOC concentrations in shipments may lead to an increase in inspection costs and a delay in moving the product to market. Meanwhile, strong, or lingering odours associated with some VOCs may induce customers to reject and return packaged products for fear of hazard or discomfort associated with the "chemical smell." Clariant's DESVOCANTTM VOLATILE ORGANIC COMPOUND ADSORBENTS help address this challenge by adsorbing and reducing the concentration of volatile organic compounds (VOCs) that off-gas from a variety of manufactured products.

The DESVOCANTTM VOLATILE ORGANIC COMPOUND ADSORBENTS range has been developed using a naturally occurring and sustainably mined dried clay mineral substance with a unique granulated structure which readily adsorbs a full range of VOCs, including aromatic compounds (e.g. benzene or toluene), aldehydes (e.g. formaldehyde), ketones (e.g. acetophenone), halogenated hydrocarbons (e.g. 1,2-dichloroethane), alcohols, esters, ethers, sulphur- and nitrogen-containing VOCs. The adsorbents are available in various sizes and are packaged using materials that allow air to permeate freely. Air flowing through the packaging material meets the complex, unique, layered structure of the clay granules, which attract and bind VOCs through adsorption. This natural process removes VOCs from the air, trapping them within the adsorbent package. As a result, they protect containerized shipments ranging from and not limited to food, medicines, textiles, leathers, dyestuffs, pigment powders, etc., during transport. The product can be customized based on the customers' needs and packaged with other materials to meet a variety of cargo-protection requirements.

Experts from Clariant Cargo & Device Protection work closely with customers to determine the optimal amount of product required to keep logistical processes efficient, taking into consideration various factors such as duration, nature of goods, mode of transit, destination, etc., evaluating each application and recommending the correct solution and dosage. These recommendations are curated through a careful process of material evaluation and selection, product development, and product testing at Clariant through a worldwide network of manufacturing sites in Brazil, Indonesia, Turkey, United States, and China, supported by an experienced global sales team working together to offer active and intelligent packaging & cargo protection solutions.

Clariant's innovative solutions for cargo protection are helping manufacturers in countries with stringent quality assurance standards, protocols and norms, that are upheld by rigorous guidelines, meet and exceed SOPs, cost efficacies, customer expectations and quality assurance standards. In India, Clariant is working steadfastly on building awareness around products that may be better suited to address specific challenges across the entire supply chain and provide immense value addition to businesses. Clariant's unique solutions enable the logistics industry to preserve the quality of the product from when it is developed to when it reaches the end consumer, thus sustaining brand loyalty.

Hemant Waghela is responsible for Cargo & Device Protection (CDP) under the Functional Minerals business at Clariant in India, since 2013. Over the past 7 years, Hemant has helped grow the CDP business in India, and in the neighbouring countries. The business provides a complete portfolio of desiccant, oxygen absorber, and humidity indicator solutions to protect goods from moisture and oxygen, throughout the entire supply chain, in nearly every industry.



Clariant completes its divestment program by reaching agreement to divest its Pigments business

- Definitive agreements signed by a consortium of Heubach Group and SK Capital Partners to acquire Clariant's Pigments business
- Enterprise Value of CHF 805 million to CHF 855 million, representing a 10.7x to 11.4x standalone adjusted EBITDA multiple per April 2021 (LTM) depending on an earn-out payment of CHF 50 million
- Clariant will be reinvesting for a 20% ownership stake in the combined business
- Closing anticipated in the first half of 2022

lariant, a focused, sustainable and innovative specialty chemical company, today announced that it has reached definitive agreements for the divestment of its Pigments business to a consortium of Heubach Group ("Heubach") and SK Capital Partners ("SK Capital") at an Enterprise Value (EV) of CHF 805 million to CHF 855 million on a cash and debt free basis, depending on an earn-out payment of CHF 50 million contingent on the 2021 financial performance of Clariant's Pigments business. This represents a multiple of 10.7 to 11.4 times the stand-alone adjusted 12-month EBITDA per April 2021 (LTM).

At the time of closing of the transaction, Clariant will reinvest to become a 20% shareholder alongside Heubach and SK Capital in the ultimate holding company. The combined business will be a global pigments player with approximately 3 000 employees generating more than

EUR 900 million in annual sales and strong service and production capabilities across the globe. The reinvestment enables Clariant to further benefit from the improving profitability of the Pigments business resulting from the initiated efficiency program and to participate in the future growth opportunities as well as synergies of the combination with the Heubach Pigments business.

The transaction is subject to customary closing conditions and regulatory approvals and is expected to close in the first half of 2022. The share of the participation in Infraserv Höchst, Germany, attributable to Clariant's Pigments business is not part of this transaction.

"We are pleased to announce the agreement with Heubach and SK Capital for the sale of our Pigments business. This achievement represents a final step in the divestment program and portfolio repositioning announced in July 2018. We are confident that with Heubach and SK Capital, we have found the right owners of this business, for our customers, our colleagues, and our other stakeholders. Now our focus can fully be on growing revenue and profitability of our core Business Areas: Care Chemicals, Catalysis and Natural Resources", said Conrad Keijzer, Chief Executive Officer of Clariant.

Johann Heubach, Chief Executive Officer of the Heubach Group, noted "We have been in pigments for more than 200 years. My late father and I set out to drive consolidation in the pigments industry, and the combination of Heubach and Clariant Pigments is a major milestone in this vision. The fit between Heubach and Clariant Pigments is perfect. The combination of industry leading technologies, a product portfolio serving a wide range of customer requirements and global production and service footprint will give the newly formed Heubach Group the ability to serve our global customer base in the coatings, plastics, inks and specialty applications fields with industry leading products and services."

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Aaron Davenport, a Managing Director of SK Capital, noted "Clariant Pigments is a premier global colorant solutions provider, and, together with our new partners, the Heubach Group and Clariant, we see a tremendous opportunity to create significant value for all stakeholders."

Once completed, Clariant will have finalized its intended divestments as part of its portfolio upgrade, having previously divested the Healthcare Packaging and Masterbatches businesses. The Pigments divestment concludes Clariant's transformation into a high value specialty chemical company with above-market growth, higher profitability, and stronger cash generation. The proceeds of the Pigments divestment will be used to invest into growth projects within the core Business Areas, execute the strategy along sustainability and innovation, fund the performance improvement programs as well as strengthen Clariant's balance sheet and fund the reinvestment into the Clariant-Heubach combined Pigments business.

Clariant's Pigments business is a leading global provider of superior quality organic pigments, pigment preparations and dyes which are used in many applications such as the automotive industry, for industrial and architectural coatings as well as for the plastics industry. In 2020, the unit's 1,900 employees generated approx. CHF 850 million in sales on a stand-alone adjusted basis.

About Clariant

Clariant is a focused and innovative specialty chemical company based in Muttenz, near Basel/Switzerland. On 31 December 2020, the company employed a total workforce of 13 235. In the financial year 2020, Clariant recorded sales of CHF 3.860 billion for its continuing businesses. The company reports in three business areas: Care Chemicals, Catalysis and Natural Resources. Clariant's corporate strategy is based on five pillars: focus on innovation and R&D, add value with sustainability, reposition portfolio, intensify growth, and increase profitability.

About Heubach Group

Heubach has more than 200 years of experience in pigments production as one of the first-ever manufacturers of pigments. Heubach is a leading global producer of organic, inorganic and anticorrosive pigments and pigment preparations, is headquartered in Langelsheim, Germany and has sites in Germany, US, and India with sales offices around the world.

About SK Capital

SK Capital is a private investment firm with a disciplined focus on the specialty materials, chemicals and pharmaceuticals sectors. SK Capital's portfolio of businesses generates revenues of approximately \$11 billion annually, employs more than 16,000 people globally and operates 150 plants in 28 countries. The firm currently has greater than USD 5 billion of assets under management.

- Manufacturing Industry towards Achieving Self-Reliance" of President Mr. Janak Mehta was published on CEW Anniversary issue of the Jasubhai Media Pvt Ltd.
- Submitted comments to DCPC on 21st December 2020 regarding proposed areas within the Indian draft Chemical (Management & Safety) Rules 20xx that need to be discussed and debated.
- DMAI extended support to ITMA 2023 to be held on 8-14 June 2023 in Milan, Italy.
- Submitted comments to CPCB on 29th January 2021 regarding discussions held at their Technical Committee meeting on 2nd December 2020 on Deep Sea Discharge norms revision. Our Inputs were also sent regarding proposed Rationalisation of current COD/BOD norms for Deep Sea Discharge of industrial treated waste water submitted to DCPC on 22nd February 2021.
- Representation made to the Additional Chief Secretary, Industry Ministry, Govt. of Gujarat on 30th March 2021 regarding Gujarat Industrial Development and Deep Sea Discharge Norms.
- Comments sent on 12th April 2021 to DCPC regarding discussion on Poisons Act compliance on the Regulatory Compliance Portal of Department for Promotion of Industry and Internal Trade (DPIIT) in the meeting held on 5th April 2021, which was attended to by our Managing Committee member Prof. Prakash Bhate.
- DMAI also submitted draft Action Plan on 12th April 2021 to DCPC regarding Action Plan for Implementation of Circular Economy in Toxic and Hazardous Industrial Waste as discussed and decided in the Meeting held on 7th April 2021, which was attended to by our Managing Committee member Prof. Prakash Bhate
- Recommendation sent to DCPC on 22nd April 2021 regarding inclusion of Import / Export in Essential Services List
- DMAI sent a representation to DCPC on 20th May 2021 regarding Impact of Diversion of Oxygen for Medical Purposes on Indian Industry and restoration of some quota for the industry.
- Representations sent to DCPC regarding 'Dyes and Pigments Industry Predicament on Raw Materials Pricing Acetic Acid' on 9th May 2021 and Aniline on 21st May 2021
- DMAI submitted a representation on 27th May 2021 to DCPC regarding gist of events for their support and financial assistance.

Seminars & Meetings



Meetings with the Secretary, DCPC

President Mr. Janak Mehta met Mr. Yogendra Tripathi, Secretary, DCPC on 10th March 2021 in New Delhi for a discussion on important issues concerning the colorant industry. He along with Past President Mr. Jitendra Patel had also a meeting with the Secretary on 24th March 2021 in New Delhi for a discussion on Deep Sea Discharge.

Committee meeting for Implementing Circular Economy in Toxic and Hazardous **Industrial Waste**

Managing Committee member Prof. Prakash Bhate attended Meeting of the Committee for Implementing Circular Economy in Toxic and Hazardous Industrial Waste, which was organized under the Chairmanship of Additional Secretary, Department of Chemicals and Petrochemicals on 2nd June 2021 through Video Conference.

Webinar on Safety Measures for the Colorant Industry

The first part of the Webinar on 'Safety Measures for the Colorant Industry' was conducted on 21st June 2021, which was addressed by eminent and expertise speakers in the subject matter from the industry. The webinar was attended by about 55 members of our Association. We are sure that all the participants were benefited from the presentations during their daily operations at the plants.

(Detailed Report on the Webinar is included elsewhere in this issue)

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