

The Solid Dose

August 2009

Colorcon® News



IN THIS ISSUE:

- What's New in Organic Coating?
- Conversation with Dr. Manish Rane
- FDA Opens a Window to PCIDs
- Product Spotlight
- Mini Challenges of Dissolution Testing
- Missed CRS in Copenhagen?

What's New in Organic Coating?

*Author: Rita Steffenino
Sr. Manager, Product Development*

Colorcon has made a global investment in state-of-the-art organic coating facilities in support of our Controlled Release Alliance with Dow Wolff Cellulosics. We have, or will soon have, new organic coating capability in the US, Brazil, UK, China and India. This capability enables us to run customer trials and experiments in support of customer modified release product development, incorporating ETHOCEL™, premium ethylcellulose (EC) polymers.

Recent studies in organic applications have focused on determining the influence of EC polymer molecular weight, plasticizer type and concentration on drug release, using chlorpheniramine maleate layered beads as a model.

- ETHOCEL, premium EC polymers, of lower molecular weight yielded less viscous coating solutions, resulting in faster product application.
- Faster drug release resulted from films of lower molecular weight (viscosity) grades of ETHOCEL.
- Drug release profile can be customized by selecting the appropriate molecular weight (viscosity) grade of ETHOCEL, while also giving due consideration to processing ease and productivity.
- Drug release from coated beads decreased with increasing plasticizer content.
- Drug release slowed significantly where higher levels of lipophilic plasticizers were used (30% w/w with regard to ETHOCEL).
- Water soluble plasticizer concentration did not significantly affect drug release.

continued on next page ►

Conversation with...



Dr. Manish Rane

Colorcon is more than a global supplier of formulated coatings and specialty

excipients. It is a company with a vision for the future and a commitment to excellent service to our customers. It is people like Dr. Manish Rane who make that vision a reality.

Manish Rane, PhD, is a formulation technologies manager (FTM), based in South Asia, specializing in oral controlled release systems. As an FTM, Rane's key focus is in providing technical leadership and support to Colorcon's regional field force for any customer project with core formulation challenges. "Colorcon gives me the opportunity to bring my passion to work by being closely associated with solid oral drug systems and the pharmaceutical industry, especially in South Asia," said Rane.

One of the key responsibilities of the FTM role is to consolidate the "voice-of-customer" feedback for consideration in future applications and product development plans. This is one of Rane's favorite aspects of the job, evidenced by his answer to the question, "How is it beneficial to customers to have technical professionals, like you, around the world?" Rane explained, "It amazes me how every day is challenging

continued on next page ►

► What's New in Organic Coating?

These fundamental studies will assist early stage decision making, when developing barrier membrane multiparticulate extended release systems, saving our customers development time and cost.

The above-referenced results were presented at the 2009 Controlled Release Society meeting in Copenhagen, July 18 – 22, 2009.

Please click [here](#) to view these, and all other posters presented this year.

ETHOCEL™ is a trademark of The Dow Chemical Company.

FDA Opens a Window to PCIDs

*Author: Dave Schoneker
Director, Global Regulatory Affairs*

On July 13, 2009, the FDA published a new guidance document titled "[Draft Guidance for Industry: Incorporation of Physical-Chemical Identifiers into Solid Oral Dosage Form Drug Products for Anticounterfeiting.](#)" This document provides recommendations for pharmaceutical manufacturers who want to use physical-chemical identifiers (PCIDs) in solid oral dosage forms (SODFs).

Colorcon has a number of innovative, overt and covert, on-dosage anticounterfeiting technologies in our film coating portfolio offering simple, yet sophisticated, methods to protect products. Examples include, pigment, ink and flavor based PCIDs that can be easily applied in, or on, film coated products. Used alone, or in combination, these PCIDs allow potential counterfeit detection by pharmacists, physicians and patients.

Another approach involves adding a taggant, which is an on-dose covert marker PCID to a film coating. The @mark® On-Dose ID covert micro-tags are custom developed from approved excipients listed in the FDA's Inactive Ingredient Guide (IIG) and manufactured by ARmark Authentication Technologies, LLC and exclusively marketed by Colorcon®.

A key benefit that these technologies bring is that the new FDA guidance provides for the incorporation of these PCIDs into existing IR film coatings on approved drug products as an ANNUAL REPORTABLE change. This means that you can easily and quickly provide significant protection against counterfeiting of your existing film coated products without having to wait for FDA approval.

Do you want further information to provide immediate protection to your patients against counterfeiting?

To learn more click [here](#).

@mark® is a registered trademark of ARmark Authentication Technologies, LLC.

► Conversation with... Dr. Manish Rane

as we get to know different problems, considering different markets and different regulatory requirements, in formulations across the pharmaceutical companies around the world. Colorcon is constantly making investments in understanding and addressing the performance gaps of current formulation technologies, as well as the requirements of new technology trends the world over. By seeking this knowledge, Colorcon creates opportunities to serve our customers worldwide with the right quality products, services and reference data."

During our conversation, Rane's enthusiasm about his work; a constant cycle of gaining knowledge and providing answers to customers and his associates, was clearly evident. He described how he is currently investing his time in achieving full subject matter expertise (SME) on fluid bed systems. I asked him to provide an explanation for SME. Rane replied, "Colorcon's definition of SME includes everything necessary to offer effective consulting internally and to our customer base. For fluid bed systems, SME entails all aspects of fluid bed processing including: theory, development, equipment options and scale-up. I can then apply this knowledge to our product and applications portfolio for multiparticulate formulations: barrier membranes and delayed release pellet coatings, as well as fluid bed aqueous granulation using excipients, such as Starch 1500 and

continued on next page ►

Mini Challenges of Dissolution Testing

Author: Ali Rajabi-Siaboomi
Sr. Director, Scientific Affairs

Mini-tabs offer significant advantages over larger single unit tablets. The benefits include uniform clinical performance, consistent drug release and numerous formulation design options. This dosage form is especially practical for elderly and paediatric applications. Like other multiparticulate technologies, mini-tabs are either filled into hard capsules or placed into sachets for ease of administration. During dissolution testing of capsules containing enteric coated pellets, it has been observed that the units stick to each other, giving variable release profiles. For enteric coated pellets, this was overcome by the application of a top coat containing silicon dioxide.

[Study Link \(PDF 971.7KB\)>>](#)

Similar to pellets, sticking and agglomeration of mini-tabs was observed when capsules containing enteric coated lansoprazole mini-tabs (using Acryl-EZE®, aqueous acrylic enteric system), were tested for drug release, leading to slower and variable drug release in the alkaline phase. At Colorcon®, our recent studies have led to a new dissolution design specifically suitable for mini-tab dosage forms. In this design the USP II method (paddle) is modified and a novel mini-tab sinker device is utilized. The novel stainless steel mini-tab sinker contains a number of mini-spiral rings that can accommodate up to three mini-tabs in each, but ideally one mini-tab should be placed in each spiral ring. The novel mini-tab sinker device eliminated mini-tab sticking and agglomeration after exposure to acid media and produced the fastest and most reproducible lansoprazole release in the buffer phase.

[Study Link \(PDF 1.49MB\) >>](#)

Missed CRS in Copenhagen?

The Controlled Release Society held its 36th Annual Meeting and Exposition in Copenhagen, Denmark, where over 1600 scientists attended and enjoyed the science-rich content with 191 presentations, 891 posters and 99 exhibits. The topics presented and discussed were varied in their scientific disciplines ranging from drug delivery to oral cavity to intracellular trafficking and communications.



continued on next page ►

► Conversation with... Dr. Manish Rane

low viscosity METHOCEL™. I am also responsible for developing and delivering training programs on our products, applications, and my SME to our technical team and customers”.

“This assignment is very exciting due to the fact that I am one point of contact for coordinating or devising training materials and handling queries from colleagues. Other Colorcon formulation technologies managers around the world, just like me, are achieving their subject matter expertise in other systems or technologies and it’s rewarding to be a part of this valuable team, said Rane.”

*METHOCEL™ is a trademark of
The Dow Chemical Company.*

For more information on any products or services mentioned in this newsletter, please [Contact Us!](#)

► Missed CRS in Copenhagen?

Colorcon, as in previous years, had a strong presence, sponsoring and chairing the Industrial Session III and student poster highlights, as well as exhibiting our products and services. Additionally, Colorcon had seven poster presentations, all focused on oral solid dosage forms and covering both single unit, as well as multiparticulate, controlled release (CR) technologies:

- The influence of viscosity grade of ETHOCEL™, premium ethylcellulose polymers, and the role of plasticizer type and levels on their films and consequent drug release from organic coated multiparticulate systems were presented. It was shown that water insoluble plasticizers and increasing viscosity grades of ETHOCEL resulted in slower drug release rates. In addition, the organic coating systems resulted in slower drug release than corresponding weight gain of an aqueous system.
- On the theme of multiparticulate systems, a novel dissolution testing method for enteric coated mini-tabs was introduced. This work showed how to reduce variability of dissolution, results that may arise from mini-tabs sticking together during dissolution testing.
- In the area of single unit CR systems, the influence of tablet geometry and film coating of METHOCEL™, premium cellulose ethers, matrices as well as preparation of hydrophilic matrices containing blends of polymers, using moisture activated granulation, were presented. The inert matrix technology, using fluid bed granulation with Surelease®, aqueous ethylcellulose dispersions, and the formulation variables affecting drug release were also shown.

We encourage you to review the full content of these posters and contact your area technical manager if you wish more information, or to arrange a technical discussion on any of the poster topics.

Please click [here](#) to view the CRS posters.

ETHOCEL™/METHOCEL™ are trademarks of The Dow Chemical Company.

Product Spotlight ...



Acryl-EZE® 93 Series

The Acryl-EZE family of delayed release systems combines the benefits of a globally acceptable enteric polymer, Eudragit L100-55 (Evonik Industries), with a formulated coating system that provides significant time savings in both development and production.

The Acryl-EZE®, aqueous acrylic enteric system, 93 series is our latest addition; offering a pigmented, aqueous, delayed release film coating system, specifically designed to provide enteric protection in elevated gastric pH environments. This series gives the formulator flexibility to select the plasticizer type and level depending on the physicochemical properties of the pharmaceutical active or substrate, and can be used on both tablet and multiparticulate dosage forms.

Colorcon's team of technical associates has generated applications data on plasticizer selection, as well as enteric coating of tablets, drug layered pellets, and mini-tablets to support scientists in their formulation development activities. Products can initially be tested at no risk or cost to the customer in one of 18 Colorcon® global locations, where a variety of equipment configurations and scales are available.

Click [here](#) for more information on Acryl-EZE.



© Colorcon, 2009. The information contained in this document is proprietary to Colorcon and may not be used or disseminated inappropriately.

All trademarks, except where noted, are property of BPSI Holdings, LLC.

For more information, contact your Colorcon representative or call:

North America
+1-215-699-7733

Europe/Middle East/Africa
+44-(0)-1322-293000

Asia Pacific
+65-6438-0318

Latin America
+54-11-4552-1565

www.colorcon.com