PAINT & COATING INDUSTRIES - *TRENDS, INNOVATIONS and NEW TECHNOLOGIES*

Technical Brief: In this article, outstanding TRENDS, INNOVATIONS and NEW TECHNOLOGIES will be briefly reviewed within the context of their well-known technical concept names in the global protective coating industry. Please note that the main purpose of this article is finding some answers to the question of "*What kind of benefits/advantages can these trends and technologies provide?*"

We are on the verge of an industrial revolution in which DIGITAL, SMART and GREEN technologies are just beginning to set in motion. In these days of fast-paced technological advances, you will be able to find the outstanding TRENDS, INNOVATIONS and TECHNOLOGIES in the PAINTS & COATINGS industries below.

First of all, let's examine briefly what these concepts above mean in a clear fashion:

What is TREND?

Have you ever realized that we are using the word TREND very frequently in our daily life? *Fashion Trends, Economic Trends, Political Trends*...Trend is, in a nutshell, a general direction in which something is developing or changing! That is, the words or concepts **showing the goings/tendency** in the specific industry or other fields... Change in life is inevitable; therefore, we often need to guess the change or progress that will take place in the near or far future by some means like TRENDS.

What is INNOVATION?

Coming from Latin language, how would you summarize this word in just one sentence? Most probably, the following explanation would suffice your need above:

"TO PUT WHAT'S NEW* INTO ACTION in social, economic and industrial fields to meet our ever-growing needs and ever-changing conditions."

*This new things can be entirely or an alternate version of an established practice.

Innovations - whether we are aware or not- are in fact an integral part of our lives as of today. Yet, people/corporations/nations that are not using it are lagging in the civilization race. This well-known truth is documented in various sources. (For more information about the relation between the INNOVATION and CIVILIZATION race in terms of socio-economical terms, you can take a look at OECD reports under the topic "INNOVATION" covering the year 2000 and past)

Consequently, with the help of INNOVATIONS, the Paint & Coating technologies at our age are changing in a very fast fashion and shape our future.

WHAT IS TECHNOLOGY?

We also use this term at our daily life very frequently. However, if asked about the simple description of this term, what would you say?

Let's listen Dr. Rüştü Bozkurt – who is a Turkish management guru and reputable economist journalist – explaining briefly this term in just one sentence:
"*Technology is achieving what human cannot do with his/her bare power, by the **tools** and **methods** which has discovered by using **his/her mind***."

When we it comes to "New technology", we mean the technologies spanning the past 15-20 years in the Painting and Coating industries and invented mostly by American, Asian, Australian and European Researches and institutions. These technologies are relatively new in most developing countries like Turkey and may still be unknown or in the utilization stage by these countries.

How can these TECHNOLOGIES in the Painting & Coating Industries be CLASSIFIED?

In order to make this article easier to read and follow, we can classify these technologies as follows:

1. CHEMICAL SUBSTANCES / MATERIALS

1.1. USED FOR SURFACE PREPARATION

1.1.1. Bio-based Solvents

1.1.2. Bio-based Abrasives

1.2. USED FOR PAINT / COATING MANUFACTURING

1.2.1. Bio-functional Paints & Coatings

1.2.2. Smart Paints & Coatings

1.2.3. Hybrid Paints & Coatings

1.2.3.1. POLYUREA

1.2.3.2. POLYASPARTIC

1.2.3.3. FLUOROPOLYMER

1.2.3.4. POLYSILOXANE

1.2.3.5. SILICATE MINERAL PAINTS

1.2.3.6. THIN-FILM COATING

2. DEVICE, GAUGE and EQUIPMENTS

2.1. USED FOR SURFACE PREPARATION

2.1.1. Laser Surface Cleaning

2.1.2. Power-tool cleaning similar to blast-cleaning

2.1.3. Robotic Systems

2.2. USED FOR PAINT / COATING MANUFACTURING

2.2.1. Electronic Proportion Spray Systems

2.2.2. Portable/Miniature Airless Spray Systems

2.2.3. Radiation-curing Systems

2.2.4. Robotic Systems

2.3. USED FOR INSPECTION / LABORATORY TESTS

2.3.1. Interchangeable Measurement Probes

2.3.2. "WIRELESS" Data Transfer: Bluetooth, Wi-Fi and Cloud Computing

2.3.3. Non-Contact Paint / Coating Film Thickness Measurement

2.3.4. DIGITAL or Paperless Documentation: To digitize reports

2.3.5. LABORATORY TEST EQUIPMENTS - New Technologies

2.3.5.1. CYCLIC Corrosion/Weathering lab. test devices

2.3.5.2. Differential Scanning Calorimetry (DSC)

2.3.5.3. Fourier-Transform Infrared Spectroscopy (FITR)

3. HEALTH, SAFETY and ENVIRONMENT

3.3. Solvent-free or low solvent/VOC paints / coatings

3.4. Odor-repellent Paints / Coatings

3.5. Antimicrobial, Antifungal and Antibacteria Paints / Coatings

4. OCCUPATIONAL / PROFESSIONAL TRAINING and CERTIFICATION

4.3. Professional Qualifications and Certification

4.4. Distance & Electronic Training Technology

4.5. Virtual Reality in Professional Trainings

4.6. Digital Applications for Mobile Devices

It would be highly beneficial to look at the TRENDS -which can also be seen as the starting point of these technologies - before passing onto the NEW TECHNOLOGIES in the above headings.

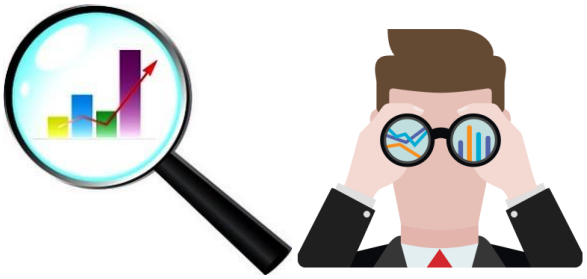

Figure 1: Tendencies that shape the future: TRENDS

PAINT and COATING INDUSTRIES - TRENDS

- ✓ The desire to perform **more work** with **less labor.**
- ✓ High demand for **longer durability**, **less maintenance / repair paint & coating systems**
- ✓ **Lower total paint/coating film thickness** and **fewer paint/coating layers** within the Paint / Coating system
- ✓ **Green Chemistry / Industry:** International Environmental Regulations and the resultant need for the new chemicals that give much less harm to our atmosphere, living beings, and environment
- ✓ Globalization and the need for more effective interaction amongst humans
- ✓ Urbanization and related needs for improving life quality.
- ✓ Recent industry revolution called as **INDUSTRY 4.0** and its related needs: *The Internet of Objects (IOT)*, Big *Data, Cloud Computing, Sensors, Cyber-Physical Systems* and *Robotic Technologies*

Following next week, these TRENDS and TECHNOLOGIES above will be reviewed in detail.

Wishing all of us a happy and effective future…

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