THEMATIC UNIT Nº 16

NEW PICTORIAL MATERIALS.

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16.1. DEFINITION.

To begin this section there should be convenient to establish a basic starting point; in this case, the new materials that we refer to are basically products that originate in the advances of the chemical industry. This is in principle synthetic polymers whose final products taken numerous variants among which we mention fibers, plastics, silicones, resins, foams, adhesives and paints. Thus, at present, the variety of final products in which synthetic polymers have become possible to find materials not previously thought to be as coatings for artistic paint, are certainly a new benchmark given its particular aesthetic and many finishes. In this section we will focus more on these new potential for coverings for paint than the resources of experimental techniques such as collage. This does not mean it is not perceived collage as an experimental technique of great interest, but what concerns us here is properly the nature of these new materials.

To begin it is necessary to establish what we mean by resin, voice from the Latin *resina*, which is defined as a pasty or solid substance which is obtained naturally from an organic secretion of certain plants or animals. These natural resins have now been replaced largely by new synthetic resins that over the twentieth century have been developed. Thus, natural polymers from these natural resins from plants and animals such as cellulose, starch, casein, wool, rubber, or silk currently have evolved with new synthetic polymers. After the Second World War, these synthetic products, mostly from petroleum, significantly transformed the world of materials available. With the current industrial and technological development, these synthetic materials formed by chemical reaction in laboratories and industries have become the most abundant materials, and its properties are comparable and even superior to the naturals. For that reason, it will inevitably end up being used by contemporary artists and that ultimately we are sensitive to their existence and their enormous potential benefits as painting materials.

In short, the natural resins, have given way to a new generation of resins, among which are numerous petroleum and plastics derivates. Within this framework we find the new acrylic paints, already addressed in the T.U. 10 and that have truly revolutionized painting since the mid 50's.

But there are also other types of acrylic synthetic resins between them we mention polyester resins, polyurethane, epoxy resin, alkyd resins, silicone resins, among many others and while not as versatile for artistic paint as acrylic, it has a real interest as a potential pictorial material because of its functionality in the manufacture of other types of industrial paints.

16.2. A BRIEF HISTORY.

It is well known that the appearance of oil painting at the end of the Middle Ages and early Renaissance was a secret shared between the Flemish and Italian whom quickly spread due to the versatility in their application. The main reasons for its rapid implementation are closely linked to the new needs of an emerging social class and the bourgeoisie, demanding of other kind of paintings and genres. So the brilliant results of oil colors, controlled drying, and glazing representation of the incarnations of the flesh, made it an ideal technique for the portrait genre. The full democratization of oil is produced throughout the nineteenth century and fundamentally in the last decades, when the painting is made industrially and supplied in convenient easily lead pipes. In the middle of twentieth century did something similar when it began to be incorporated plastic paint to artistic practice. Although the first serious attempts to get a synthetic paint were at the 1830, and triumphing in 1860, it was specially developed after the First World War. After the war, there was suddenly a huge surplus of this substance, the flexible celluloid or nitrocellulose, used as an explosive during the war, and was obtained from a 'plasticizer' as camphor, now unused, so, new applications will be sought. Dissolved in an organic solvent and enriched with resin, nitrocellulose produces a varnish a sort of synthetic lacquer. Colored with pigments, is a hard paint, bright and fast drying began calling enamel paint. The fact that this finding was used first by the car industry, to cheapen and streamline mass production of cars, allowed to replace celluloid commercial paints by alkyd resins in the 1930's. Alkyd resins evolved into other plastic paints like house paint and acrylic.

In the Thematic Unit 10 we discussed the great contribution of the Mexican mural painters, the incorporation of new industrial paints to the artistic practice. Also spoke briefly about the evolution of acrylic and artistic use first in the U.S. with authors such as Jackson Pollock (1912-56), Mark Rothko (1903-1970), Kenneth Noland (1929-2010), Robert Motherwell (1915 -91), Barnett Newman (1905-1970) or, especially, Morris Louis (1912-1962) and Roy Lichtenstein (1923-1997).

But besides experimenting with the first acrylic solutions "Magna" also worked with synthetic enamels and with new coatings and anti-rust or red lead primers. Thus the development of industrial paints, walls paints and bright enamel paints were a reduction in cost that allowed artists to incorporate in postwar times new plastic materials, sometimes bought in large quantities, and not tubes but in pots, in liters or kilograms.

So Morris Louis since 1948 began to experiment with products like acrylic but also with the "duco" (a lacquer developed by DuPont for cars). Possibly contact with these materials is due in large part to his friendship with two artists started in the synthetic resins such as David Alfaro Siqueiros and Pollock. Since 1953, Magna acrylic solutions evolve to other acrylic emulsions based on plastics (perspex or plexiglas) as Liquitex, with which later triumphed Pop or artists like David Hockney. Moreover, in the case of artists like Frank Stella (1936), will be used these acrylic paints, plastics and industrial also in an industrial way and with a high level of purity: *"And that's what I tried to do. I tried to keep the paint with the same good looks like on the pot".* In this regard, it is clear that his stay at the Princeton Art School was fundamental so that Stella were introduced in these technical and practical processes that opened with the use of acrylic paint. Also keep in mind that his choice of materials also had to do with his work as a painter of "broad brush" on holiday in his student days. It finally took to his own painting work aspects closely associated with commercial brushes, enamels, car paint, besides the aforementioned acrylic.

We can say that the plastic itself, as a product begins to join with some ease to the artistic movements of the second half of the twentieth century as a result and reflection of their use and proliferation by society. If during the war were scarce raw materials and this caused a great development and production of plastics industrially, behind it, the concepts of innovation, progress and industrial development decline, and in turn the social reputation of the plastic. However, with their daily lives they begin to be more attractive to artists. With Pop Art emerged in the 50's in England and a decade later in America, they are incorporated into art icons from the cinema, advertising, comic books and in general any field of popular culture. The same applies to the materials, assuming the domestic paint, acrylic, plastic and screen printing, from advertising. Overall, with the 60's turns to consider positively the cultural and popular aspects of plastic as a way to undermine the elitist aesthetic criteria. In that sense we share the following statement of Sergio Garcia:

"Plastics first came into society and artists in frenzied research activity come to use those achieving very specific works and amazing characteristics that have revolutionized the art world. Plastics are a symbol of the society in which we live, and as a result, this will be reflected in the story. "[1]

[1] GARCIA, Sergio, "Intrusión de los plásticos en la escultura", *Liceus*, en http://www.liceus.com/cgi-bin/ac/pu/Sergio_Garcia_Plasticos.asp

It is true that the emergence of plastics in the sculpture was spectacular from the 60's, producing a real euphoria among artists, but it is also true that as a result of its use, the weakened boundaries between sculpture and painting, finished blurred. This is especially visible in Robert Rauschenberg (1925-2008), one of the representatives of Abstract Expressionism and Pop Art also precursor to the mid-50's in works such as *Man with White Shoes* (1954) begins to incorporate bits of plastic combined with plexiglass and photography to create paintings and paint-sculptures.

Also within an aesthetic in which we can see a cross between Pop Art and Art Constructivist assemblages we feel it important to mention the particular universe of Lourdes Castro (Madeira, 1930) which became known internationally for his series of "Silhouettes" painted on cut Plexiglas. In this serie started around 1963 joined effects of immateriality associated with beauty and lightness of the accumulation of layers of acrylic glass, introducing new perspectives in the European Pop Art. An example of this is work as Self-Portrait (1965) and Tray (1967) in which evokes two of the traditional genres such as portraiture and still life but filtered with the iconography of the shop windows made from sheets of cut Plexiglas. Similarly, absorbed principles of treatment of transparency, light and shadow targeted at constructivist assemblies, but giving them a special meaning away from pure abstraction. These overlapping layers very well advantage of thickness of acrylic glass blades, intervining on them with alternate layers of covering materials with paint and silkscreen. In works like *Shadow Casting Adami*, *Andre Morain projetée Ombre avec Linhof*, both from 1967, introduces the shadows of certain professional colleagues as a central motif. The fragility and ephemerality of human been appear as updates on these paintings, for this, Castro uses the dematerialized effect that we associate with the shadows cast by the profiles cut in Plexiglas.

Within the New French realism we have artists like Cesar Baldaccini (1921-1998) and Arman Fernandez (1928-2005) investigating new materials such as polyester resins, Plexiglas and the polyurethane foams. Both authors use the materials in an incongruous spirit of accumulation underlying the consuming passion for modern societies.

In that sense Cesar Baldaccini raises questions directly related to concepts such as compression and extension. This first concept it is seen in his radical compressions in blocks of condensed cars, appliances and scrap metal. Likewise, the other concept dedicated to the extension, is evident in works like *Expansion* No. 14 (1970), working with irregular

shapes derived from the polyurethane foam solidified. His technical expressive reasons led him to take a polymer found in 1967: the polyurethane foam, material that is based on the mixing of two components (polyols and isociaonatos). He focuses on the properties of this material in an unusual way by using its expansion process, such as "party matter" thus making the creative process in a performance in which the work resulting from these processes of expansion is finally chopped and split between the public, allowing each participant takes a fragment of it as a memory. Moreover, the expansion solidified, is treated with a more permanent character, for which proceeds to apply a color coating. Thus, *Expansion nº15* (1971), the hardened foam has frozen the previous process of matter expansion to show aspects like fluidity, growth and advancement.

Furthermore, in the case of Arman, polyester resins and Plexiglas allowed to perform works by accumulation of large numbers of objects that were literally agglutinated in large transparent volumes. Formal and conceptual characteristics that will be present in early works such as *Untitled* (1961) –done with knives- and *Buttons* (1964) and will continue for decades. In works such as *Paint tubes* and *Paintbrushes* both made in 1991, where Arman satirises with the idea of time trapped as a reflection of the pictorial activity itself. The traditional tools of the painter (oil tubes and brushes) are trapped in blocks of synthetic resin as a metaphor for artistic activity considered by many to extinguish, and that appears trapped forever as insects in amber that have survived since the Jurassic time. Moreover, the importance of color in Paintbrushes allows us to anticipate the formal characteristics of painting more visible in recent decades; we refer to the idea of three-dimensional touch mentioned by Ignacio Perez:

"A plastic resin such as polyester acts as a binder when stained with appropriate color concentrated, while still retaining its sculptural volume. It works, somehow, like a stain or paint stroke in three dimensions. "[2]

Precisely this idea of "three-dimensional spot" understood as both support and opaque, it is in our view, essential to analyze the work of many artists who incorporate synthetic resins and plastics to their works. Contradictory pictorial gestures frozen through new sophisticated materials associated with the brightness of the object of industrial design. Precisely this kind of discourse we can find plenty of contemporary

[2] PÉREZ JOFRE, Ignacio: "Polímeros y arte contemporáneo. Una reflexión sobre su significación cultural desde la contemporaneidad." En AA.VV: *¿Qué es la escultura, hoy? 1º Congreso Internacional Nuevos Procedimientos Escultóricos*. UPV, Valencia, 2002, p.359.

authors such as Peter Zimmermann, Frank Piasta, Etienne Bossut or Markus Linnenbrink. Trend, which we discuss in the final section dedicated to the plastics and synthetic resins in the paint of the twenty-first century, and has its equivalent in the national context with artists such as Miquel Barceló, Mercedes Lara, Torregar, Kribi Heral, Sergio Porlan or David Rodríguez Caballero, among many others.

From the pictorial point of view and on the border between Art Brut and Art Povera, we place the informalist Alberto Burri (1915-1995), an artist who is always based on non-traditional materials. Rough cloth bags and jute, wood, iron, textiles, tar, rust, flakes, sawdust, pumice, kaolin, glue, cellophane, cellotex, cement, and plastics that are sublimated burned in an exercise of color, texture and craftsmanship whose main role is matter. The transformation plastic of materials itself, forms a posteriori, a "polymatteric" object. In this context it seems appropriate to emphasize as from the year 1957 onwards Burri's research took a dramatic turn with the cycle of *Combustioni*, where the artist introduced fire as a creative instrument in which it appears very clearly the concept of "metamorphosis" of matter. In this cycle, Burri began to burn, sink, and transform charring materials like wood, iron, and all types of plastics including PVC rolls, for the great expressive possibilities it provided. In that sense, understood as the plastic waste or scrap of society was to him a symbol of desirable aesthetics. In works like *Plastic Combustione* (1958), *Red Plastic* (1962), *Big Red* P18, all from 1964, illustrate the damage caused and accelerated materials.

Another movement in North America primarily sculptural born between 1965 and 1970 was the Minimal Art, characterized by rectangular and cubic forms and neatness of the finish, where the work, as single piece do not exists and all locations in space are part of a set with single message. The artists of this artistic movement used plastics frequently and with different intentions. In that sense, we can mention Craig Kauffman (1932) who in late 1963 began working with Plexiglass PMMA and about 1967 joined the idea of volume to such material by vacuum molding techniques similar to those used in the automotive industry. In the same year Les Levine (1935) in his installation with *Disposables* (1967) was also incorporating the artistic possibilities of vacuum molding. In the case of Les Levine, interest in the cheaply and mass-produced plastic allowed him to bring new spatial possibilities through repetitive accumulations of plastic modular units embossed in both soil and wall. This work of Kauffman and Les Levine interests us particularly in the pictorial character when assuming the color and wall as preferred aspects for

sculpture. And in large measure, can be perfectly assume as precedents of wall sculptures of young emerging artists as Vincent Szarek (1973).

Returning to the path marked by prominent members of the minimal movement, we cannot overlook Robert Morris (1931) and Donald Judd (1928-1994), since both have incorporated methacrylate as end material to their works. Many were criticized at the time to appear extremely "cold", since most of them were manufactured industrially and in series. Donald Judd, linked to the minimalist definition of the subject, established a new border to get away with enamel coating and benefit from the qualities of the colors of the surfaces themselves. Judd noted the importance of how the color and surface of the material chosen become a single entity to be exploited by the artist. So much so, that's so, intended to prevent the exercise of depositing the color of the surface paint layer thinning to a minimum. So Judd understands the color only in the space, not disposed on a surface, for example the canvas, but projected on the space, confused with the plane, texture, brightness, depth, will be expanded. All this, forming an inseparable part of the commercial material available in several standard palettes that largely reflects the legacy of pioneer Charles Biederman boxes made from wood and Plexiglas.

In the field of painting we have a current rather influenced by the applications that had already been given in sculpture, so that shortly after the incorporation of acrylic paint with cheaper plastic, many painters were raised without of possible applications to move to employ covering material itself as a support and covering the same time. In this line we can mention the universe of Piergiorgio Zangara (1943) that from the logical rules of the lead-paint made constructivist sculpture entitled as *Madi nº. 49* (1975).

As for Richard Serra (1939), we must remember that in their eagerness to experiment with unconventional materials, somehow takes some of the above concepts of soft sculptures of Duchamp and Oldenburg. To this end, in 1967, manufactures a number of pieces, among which we cite *Chunk* and *To lift*, using vulcanized rubber. In these works, "Serra applies a new methodology of creation in which the works arising from the combination of materials and physical actions". That is, taking advantage of the flexibility of vulcanized rubber sheets performs works liable to absorb in its essence physical actions such as bending, lifting, rolling, etc. In a way, these works may be considered background to the work of other artists present and Angela de la Cruz (1965) with his paintings of the frame but released almost like sculptures presented after being ripped, torn, wrinkled or folded as deflated, 2009. Moreover, the influence of

Serra on other young painters, Tom De Groot can be felt in the interest shown by new variants that offer rubber paints also called acrylic asphalt. Seen in the distance, perhaps the legacy of Donald Judd in the minimalist movement has been the most influential in contemporary painting. In this regard, certain formal characteristics of his works have been fully taken up, including the recurrence of simple geometric shapes and erasing any trace of authorship resulting from the use of industrial materials. Another clear influence lies in the idea of serialization of works in painting but perhaps now that serialization takes on a new hue to be understood as a record of the various plastic tests performed.

From the 80's and 90's, one can speak of a full normalization in the use of plastics. Overcoming the artistic vanguards individualities of freethinkers who experiment with multiple possibilities of the existing industrial materials exploded. In this context, the hybridization of languages and commonly used materials such as plastic, everyday generated an important development in the art, been one of the most active foci in the British Isles. At that location can be found plastics and glass fibers of Anish Kapoor (1954) which applies to the polyester resins powder pigments. Likewise, another British artist as Tony Cragg (1949) used pieces of brightly colored plastic arranged both on the ground and on the wall, or make carpets of plastic bottles. In any case for Toni Cragg the important thing is not to use the material as a novelty but as an expressive need to serve the intent of the artist. On this basis, Cragg continuously used materials, subject to the message of the work. Thus, in the early 80's, began working on installations made of many recycled plastics fragments are arranged in an image.

As for the color treatment by Cragg, he elevates the purely sculptural, and approaches it to a kind of painting finally expanded away from the limitations that are attributed to the rack and the frame. Examples include early works such as *The Streets are full with Cowboy*, 1980 in which he uses bright yellow recycled plastics, arranged on a wall that does see human figures highlighted by the white holes left. From the idea of installation as expanded painting in Tony Cragg, seem appropriate to mention the works in the 90's began to make Sol Lewitt (1928-2007) in styrofoan. In that sense the styrofoan (extruded polystyrene foam) material originally marketed as insulation, packaging and art supplies, becomes for Sol Lewitt an ideal resource for its claim to art modular and open source. LeWitt designed modular sculptures and murals systematic instruction sets consisting of precise, logical or mathematical, that anyone could run. His idea was that true artistic creation was at the gestation of the idea and design, while the production process was a matter of craft or

engeneering. Within these schemes, made paintings like the 100 series *Cubes* (1991), or the mural called *Wall Drawings* common denominator lay in the use of the basic colors yellow, red, blue and gray, applied directly to the wall with circular movements in transparent layers. The drawings should be interpreted not as a single frame, but as part of the architecture of the room. In that sense in the mid 90's Sol Lewitt made several works with synthetic foam styrofoam as: *Red and yellow on a blue styrofoam wall*, 1995. Also *The Lighthouse,* 1996, made of styrofoam painted in black on white and previously painted walls in the three primary colors.

As derives from the above examples both Tony Cragg and Sol Lewitt, installation is one of the art forms in which the many and various forms of plastic are incorporated in bulk, especially in recent decades. In this context, hybrid expanded painting, installation and Art Povera seems interesting contribution in the national panorama of Jose Sanleón Valencia (1953) with his numerous works done in the early 90's with used truck tarps, old awnings and tents. Sanleón belongs to a generation of artists during the eighties of the twentieth century contributed in one way leading to the renewal of Spanish art. Between 1993 and 1994, the IVAM, one of the most internationally renowned Spanish museums of contemporary art, dedicated to this artist an exhibition at its headquarters in the Centre of Carmen in which his works were inspired by cities like Rome or New York. From premises close to American abstract expressionism, Sanleón has made continuous reinterpretation of the landscape of the city, the metaphor of the labyrinth, the homage to the classics, or perhaps more importantly, the concept of painting as a constantly changing and expansion territory. In works such as *Cathedral*, 1991, is close to the budgets of Art Povera, from the "Ready-made painting", where old plastic sheeting is advertised as a metaphor of the same material used. That is, assume that plastics usually quickly lose their new appearance, but are resistant to full disintegration, that is not biodegradable and therefore generally are somehow timeless and worthy materials for painting. We believe that in the case of Sanleón, this statement is literal, in fact in his paintings with canvas, oil, the color worn by the sun, the seams and joints of the canvas, setting rivets, all make up a universe is shown with a new look. In the late nineties, the author joined the aforementioned canvas, photographic technique, but what is most surprising is the process of destruction which makes those pieces of the end of the decade. Thus, Sanleón not only recycles the canvas as a support prior to painting, but also in a second or third operation destroys and "kills" earlier works to build new ones. Perhaps symbolically, he is

talking to us about the announced death of painting, finally postponed, and through the plastic and lack of its biodegradation, express eternity.

But the news in the 80's and 90's are not limited only to the medium used, it also reflects the innovations in the field of new opaque that painters have developed with synthetic resins. In that sense it seems appropriate to dwell on the evolution of the work of Frank Stella (1936) The American painter resigned the abstract expressionism, converted from the 1960's in one of the leading representatives of geometric abstraction and constructivist art, minimalism prelude. In the eighties began to work with great frequency on plates of metal and fiberglass, and paint-take on a sculptural aspect to be coated with metal paints in bright colors. Importantly, and as we have already discussed, the choice of these materials may be due to his past as a painter of "broad brush". This is a question that has kept him familiar with all the new materials and industrial paints that were occurring. Examples include works such as *The Science of Laziness*, 1984, belonging to the National Gallery of Art Washington DC and made with oil, enamel, polyurethane, alkyd fluorescent acrylic and ink / canvas, etched magnesium, aluminum and fiberglass. Another clear example of that sense eclectic mix of materials we have in *The Dragon and the fatal mare,* 1986 also made similar supports opaque. Next to the volume and irregular shape, plays a fundamental role shadows projected on the wall. His paintings, objects have played a role in the development of American and international vanguard at the same time they have influenced countless later writers, among which we name the Portuguese Pedro Calapez (1953).

But far from talking about isolated cases, we must say that it is increasingly common that continuous incorporation of industrial novelties to painting. In this line we cannot ignore the American Peter Halley (1953) and his loyalty for decades to painting Roll-A-Tex. So, since the 80 started to use this material, has continued to use it to its particular geometric painting. Examples include paintings such as the *Cell with Smokestack & titled Underground Conduit*, 1985. In the early nineties with works such as *303*, Cooperfund Collection, also begins to use the Day-Glo (Fluorescent Acrylics) and since 1995 in addition to painting with acrylic Day-Glo and Roll-A-Tex used metallic acrylic paint. The titles are shortened and the images appear to move from the geometry of the labyrinthine streets of a big city, simulate circuits and microchips of a computer. Since 2000, the opaque paintings are enriched above the so-called "Pearlescent acrylic," i.e. acrylic pearlescent effects, as we see in *Anti-Trust*, 2000. All these developments on coating materials used in the case of Halley makes sense in that its geometric painting is intended to

reflect the society of our time. The cool and sophisticated finishes that provide industrial paints used can also be understood as reflecting the general climate of today's society, while the geometric also alludes to the lack of communication in contemporary societies. To a large extent this feeling affects much of the postmodern artistic production and encourages the use of these materials of an industrial character.

Currently, plastic materials accessible to the artist are unlimited: the emergence of many new synthetic polymers, which can be modified with lots of additives and fillers, extend unlimited expressive possibilities of these materials. This situation means that, as we have been discussing, today plastics are present in a substantial part of works. After observing the course of the polymers to date, we can observe the role played by these materials in various artistic movements, especially in sculpture, polyester resins being the most used, followed by methyl methacrylate. However, the painting also begins to use them more frequently, especially when their drift tends towards three-dimensional searches that might provide a stronger emotional message. It is normal to see exhibitions in which artists present their works in these materials as supports or work itself, or used as part or element added to the pictorial piece. The plastic material accessible, malleable, economic and tough to time is under constant study and research in the official teachings of Fine Arts. Also, the lack of feeling of acrylic emulsions, inexpressive or mechanical roller, the fullness of synthetic colors, is extended with the minimalist chill some contemporary painters seem sincerely tighten the practice of painting between the reaffirmation and denial, and is that as Batchelor says:

"The painting has remained attached to that which could extinguish it, and that has included the possibility that he had just not been distinguishable from the broad brush painting. There was also the possibility that the paintings were to be indistinguishable from the objects, photographs, texts, etc."[3]

The new painters as the aforementioned Peter Halley, call into question the formal dogmas and unidirectional visions of things. None of them, probably, conceives his art so militant, nor believe in the possibility of creating pictorially a totalitarian and absolute universe reference for others. The abstraction, from Gerhard Richter's teachings, are but a material or forms that can be freely used without reference to a particular moral. In An evolution that is, operations, new media technology, video games, flat screen computer and the millions of megabytes and pixels of

[3] BATCHELOR, David: *Cromofobia*, Síntesis, Madrid, 2001, p.122.

current digital images. However, in this scenario invaded by technology, we find artists who offer resistance to give up the act of painting.

Finally, we must clarify that logically we cannot cover here the countless artists who now are interested in new products. Now, we would like it would encourage reflection which would cover with different eyes much of contemporary painting. We find it difficult to understand the attitude of contempt that still maintain some artists and perhaps most theorists and art critics to the techniques and procedures. Generally the so called kitchen has been associated with the artisan, question that logically does not like the alleged superiority of the artists. But at the same time, we understand that every historical moment has its own techniques and therefore even maintain a sense of tradition, are absolutely necessary.

16.3. AESTHETIC AND PLASTIC CHARACTERISTICS.

The special textures and finishes of the covering industrial materials have not gone unnoticed by contemporary painters. In that sense we would like to highlight some aspects which we consider to maintain continuity within the panorama of contemporary painting made of plastics and synthetic resins.

It can be sensed majority continuity of the "neoplasticisim" and the abstract painting that somehow looks like an attempt to revive the modernist ideology, but with new aspects related to the absence of conviction characteristic of postmodernity.

- The choice of material, color, layering plastic, are and are not paint, understood as covering material, although clearly call into play the elements constituting it.
- Approaches in principle antagonistic to the organic persistence, gesture, shape, color and yet a final finishing far from the prima paint and closer to the cool and sophisticated finishes own to the world of design and slow procedures arising from the accumulation of layers.
- Contrast between a painting work, that claim to be unique, and the idea of serial industrial product. This question can justify the title used in many of the works mentioned and understand the painting as an artistic experimentation similar to the processes used in laboratory tests.
- The use of unusual supports helps to bring artists to the industrial society that surrounds them and the fast time of the show, but at the same time the traditional application, the slowness that we

associate with each sweep of the brush become a form of resistance defined as the time from experience and reflection, and it hits the speed above mentioned.

- New methacrylate supports translate to many artists in a continuity of old artisanal methods as were the fabrications of glass or traditional painting procedures of glazes and transparencies. However, methacrylates provide for their own characteristics, advantages resume when the light as a research and allow assimilate from painting, new concepts of work in layers, present for example in the treatment of digital imaging.
- The "paint-sculptural" universe of many of today's artists, whose common denominator, producing works that push the paint around three dimensions, i.e., making articles of images that are projected outward in space real. In this sense plastics and synthetic resins can act as vehicles and ideals necessary to carry out these budgets, since they can be both substrates and coatings.
- Another issue of interest is to see how certain plastics and synthetic materials often associated with intermediate processes of artistic production, such as the casting mold, just happening to be considered worthy materials and final in the final exhibition of the works.
- Although it is not possible to define a national phenomenon in a globalized world like ours, the fact is that much of the contemporary painters interested in new materials and supports are of German origin. Perhaps this observation is anecdotal if you look at the interest offered by German art academies to the material issues, possibly relating to obey the direct educational model already initiated by the German Bauhaus of the 20's.
- The gloss, pearlescent finishes, gummy texture, the wide range of fluorescent colors that are advertised in the catalogs of any trademark, provide possibilities that have not gone unnoticed to the painters of our time. In fact, certain works in their titles include explicit references to the naming and numbering of the Pantone codes for the products pictorial employees.

16.4. TYPES OF SYNTHETIC RESIN.

According Groober, and other experts, synthetic polymers can sort them into three basic categories: thermoplastics, thermostables and elastomers.[4]

[4] GROOBER, Mikell P.: Fundamentos de Manufactura Moderna. Materiales, procesos y sistemas. Pearson/Prentice-Hall, Hispanoaméricano, México, 1997, p. 184

Thermoplastic (TP).

A thermoplastic is a material which, at room temperature is slightly deformable or plastic, becomes a liquid when heated to a certain temperature and hardens in a glassy state when cooled sufficiently. Its physical properties can change gradually when melted and molded several times. The main ones are the polyethylenes and derivatives using ethylene as feedstock obtained from petroleum processing, it allows later, enables different substances such as vinyl acetate, vinyl alcohol, vinyl chloride, etc. Pertain to his group PVC, polystyrene, acrylic, Teflon, polycarbonate, etc. They are the materials most widely marketed.

Thermostable (TS)

Also called thermorigid, are materials that once they have undergone the process of heat-melting and solidification formation, become stiff materials that do not allow re-melted. With reaction and initial heat soften and flow to be molded by taking its final irreversible form.

Unlike thermoplastics that can overheat and adopt new forms, i.e., can be reused, thermorigid polymers whose shape remains unchanged after cooling, carbonized if excessive heat is applied, i.e. can not be recycled. These thermorigid resins are usually liquid at room temperature and can pass into solid by the addition of a catalyst which generates a polymerization reaction. This are of this type epoxy resins, melamine resins, bakelite, polyester resins, polyurethanes, etc.

Elastomers (E).

They are polymers that have an extreme elasticity, when subjected to relatively low Efforts. Some elastomers can be stretched up to ten times their length and then recover fully to its original shape. Although their properties are different from thermorigid, share a similar structure, however, different from thermoplastics. Are of this group the silicones used in the manufacture of flexible molds.

A final classification of synthetic resins would attend its generic application, and consequently the final products can be obtained with synthetic polymers in that sense we may include: fibers, plastics, silicones, etc.

16.4.1. Acrylic resins.

As we have already had occasion to comment on the acrylic resins have their origin in the polymer temperas. The chemical reaction that forms polymers is called polymerization and there are basically two kinds of reactions: addition and condensation. When polymerization is an addition or also called chain reaction, when the whole of the monomer molecules are directly bonded to form the polymer, without producing any waste, such as polyethylene, formed by addiction of ethylene molecules. One of the most common reactions for obtaining polymers is addition polymerization by free radicals. To generate a free radical from a monomer required the addition of an initiator. Among the polymers obtained by free radical polymerization have polystyrene, using benzoyl peroxide as initiator. Within this group can find many interesting materials: polyvinyl resins derived from polymerization of vinyl compounds containing (CH 2). Among them is the polyvinyl chloride or PVC, PVA or polyvinyl acetate and polyvinyl alcohol. In most cases thermoplastic resins are obtained, i.e. that can be reversed by heat and soluble in organic solvents. Acrylic resins and methacrylic are formed from acrylic and methacrylic acid. Acrylic polymers have many properties in the field of varnishes and fixatives and the consolidants, expressing optimal adhesive properties on many materials.

As for its application in contemporary art we know the great success and expansion of the acrylics and the great masters of this technique in the 60's and began to spread to almost end to overthrow the absolute supremacy of the date of oil painting. David Hockney illustrious name will be forever associated with the history of procedure. Particular aspects of this technique as the facility to produce flat spot colors will also be associated in the history of art movements such as Pop Art.

At present the number of artists working with acrylic is almost infinite as one of the techniques employed. In any case, next, we would like to mention some of those who have drawn attention for their particular way of implementing it. Among them, it seems fair to mention Eduardo Costa (Argentina, 1940) is one of the most important figures of conceptual art. Since the late 60's in New York, took an active part of the group of artists including Vito Acconci, John Perreault, Scott Burton and Dan Graham, among others. The solo show exhibition *hop imagination II* in Farias Fabregas Gallery is formed by a group of recent "volumetric painting". They are geometric works of brilliant colors and delicate shapes and textures completely or almost completely made of acrylic paint. Costa has developed an unusual technique of work which applies and builds up

layers of paint, which is allowed to dry, to create three-dimensional shapes. The "volumetric paintings" have their beginnings in 1994 when by chance, Costa discovered in his studio a bottle of acrylic paint, that having been poorly covered for years, produced inside a volume of dry paint. Hence the idea of using conceptual matter itself (painting) as a substance to create objects (early fruits, portraits, vegetables, clothing for acrylic paint) and then to create the geometric monochrome.

Within our immediate environment is interesting to note the contribution of artist Sergio Porlán Lorca (1983) in his painting, provides a number of mechanisms such as gesture, color, dimensionality and frontality defined themselves as a procedure and language. So Sergio Porlán used as a support crystal cars and acrylic sheets, and as a covering material, synthetic acrylic resins applied with brush and even blade swept.

16.4.2. Epoxy resins.

The epoxy resin is generally used to stiffen other products. In the case of paints and varnishes containing the epoxy resin, the aim is to gain consistency against wear and abrasion. In other fields such as electronics, epoxy resin can protect circuits and transformers to prevent damage from dust or moisture.

Epoxies are widely used in primers for both corrosion protection and for improving the adhesion of subsequent coatings. Metal cans and containers are often coated with epoxy to prevent rust, especially acidic foods like tomatoes. They are also used in decorating high strength soils, such as terrazzo.

Epoxy resins are used in the construction of molds of masterpieces, rolling, extrusion and other industrial production’s aids. The results are cheaper, stronger and faster to produce than made of wood, metal, etc. The compounds of fibers and epoxy, although are more expensive than the polyester resin or vinyl ester, produce more resistant pieces.

Within the art world as to the use of epoxy resin with pictorial purpose include Peter Zimmermann (1956) considered one of the young abstract German painters considered the most unique in the contemporary international scene, his works have been exhibited by different centers, galleries and museums worldwide. Since the eighties, Zimmermann developed a very personal visual grammar in which the intervention of digital processes determines artistic creation, leaving behind the traditional methods of painting. At first glance, the latest works of Peter Zimmermann gives the impression be conventional decorative pieces,

perhaps because the original artist's methods give great strength to the images, getting spectacular aesthetic results. Paint is made in epoxy resin layers, which act as a solution for dyes and pigments. As a result of this costly and slow process, Zimmermann epoxy resin makes truly significant material and personnel. Actually its production, there is nothing to be with the spontaneous expression of the free individual who creates himself, but rather the result of a complex technological process. Zimmermann paints latter consist of superimposed layers, one over another, epoxy resin, of beautiful realization. This process of layering and sedimentation for Zimmerman is a kind of memory structure, which in turn is not reduced to the mere reproduction of what has been. Each new layer interferes in the above, remaining visible because the lower layer to coloration. In contrast to the digital medium from which the artist harvests his data, the paint results in something permanent and inexhaustible with a three-dimensional and volumetric clear glaze effect.

Moreover the also German Markus Linnenbrink (1961) maintains that difficult balance between sophistication and tradition of the painting. His continued experimentation with paints, takes him to superimpose successive layers of acrylic and epoxy resin with ability to explore transparency and consistency of the paint color through multiple chromatic waves. Heir to a certain extent of optical art, his works let the viewer's eye wander freely on the repetition of color bands and concentric circles. Its chromatic level is close to the bright and acid colors of psychedelic and as for the relief of his works, seems closer to the accumulation of meteorite impacts on the lunar surface. In any case it is a work clearly customized through the use of a coating which acts on the canvas with many nouance both color and volume.

Regarding the national scene is significant contribution the Valencian Carolina Ferrer (1966) In his latest exhibition entitled *Scenery of memory: the logic of an obsession*, held in Valencia between October 2008 and January 2009 and *Memories of the future presented* in June 2009 Gallery in Madrid May Moré, the Valencian artist has reduced the motives and intensified its unique way of working. But the reduction has been accompanied by reasons of continuity in terms of interest in large format, stable compositions, a clean look and a range of colors to which he is faithful. Defend a way to work in extremely complex, based on acrylic resins. Her system is slow and tense work and starts from the ritual of painting in layers of glazes and transparencies. His painting eliminates accessory, giving strength to their images, cleaning of topics is demanding, the unrealistic nature of light in his paintings reminiscent of artificial lighting and acid colors of digital images. Precisely that special

light, which seems inspired by a computer monitor or large screen LED technology, is on which rests much of the achievements of his painting. The most common colors in his repertoire are the blacks, acid greens and magentas are shown with the individual brilliance that gives the technique based on epoxy resin. The reflections that cause, depth and corporeity that provides that epoxy resin, give mystery to her images and make it her most personal hallmark.

16.4.3. Silicone resins.

Silicones, the known organosilicon, form a varied and important class of polymers. We find them in different forms and applications such as oils, resins and elastomers. They are used as lubricants for gaskets and seals, electrical insulators, molded, medical applications, etc.

Regarding the use of silicone with pictorial sense is necessary to mention the work of Fran Piasta (1967), like other young German artists draws our attention for its minimalist abstraction of organic character, where pigment bonded with silicone is used on aluminum. His work has close links with their compatriots Peter Zimmermann and Sybille Pattscheck, and the monochrome of the Belgian and Dutch Jus Juchtmans Clary Stolte. In the case of Frank Piasta, It surprise us the character given the transparent silicone, and interest to accumulate enough material to make this the rubbery and slippery feeling so specific of the material. In a way, to the qualities like a covering are adding qualities of tactile character.

16.5. INDUSTRIAL PAINTS

16.5.1. Rubber and acrylic asphalt.

This type of industrial paint is very useful for surfaces exposed to water and humidity. On the one hand we find in the market under the name of anti-damp paint and are often applied in areas such as bathroom, garage, or even abroad but not in surfaces with direct contact with water. Being water resistant can be removed with relative ease, even holding the rub (depending on quality). The appearance can be matt, satin or gloss, depending on model, and has a wide variety of colors (over 3000). It is mainly applied on plaster or cement and its derivatives and is not recommended to be used on other supports such as metal or wood, in which case it is necessary to make special priming.

The high density of these plastic paints provide many possibilities when it comes to getting textures and characteristic marks of the tools and brushes with which have been applied. The fact that are soluble in water,

also greatly facilitates its application and cleaning the tools used in their application.

In other countries like Venezuela is often the anti-moisture paint to be called rubber paints.

In any case, if we want still a more dense and elastic paint is interesting to pay attention to elastic coatings used for waterproofing roofs and terraces. Its special qualities allow maintaining its elasticity much longer than any other type of acrylic or plastic paint. Its greater density and elasticity, of a painting that has to withstand changes in temperature outside, makes them very interesting for paintings in which we want to use lots of texture maintaining stability guarantees on any support although it is a fabric. Moreover, it is also striking their great ability to agglutinate fillers, which may further increase their matter density.

This type of paint, when dried becomes a rubber sheet perfectly waterproof, and very elastic even under temperatures of -15 ° C.

In summary listed below some of its main features:

- Excellent adhesion.
- No yellowing.
- Insensitive to alkaline funds.
- Its composition is free of asphalt or bituminous products.
- Waterproofing.

To its high resistance to external temperature changes and we have to add resistance to wear and abrasion as it applied to "walkable" surfaces.

Another issue of interest when be adjusted as painting material of an artistic character is his willingness to be combined with mesh and textile fibers which typically occur when applied to form a sandwich with these mesh in waterproofing of terraces. This issue further encouraged to be able to use this type of paint on fabric supports while maintaining good guarantees of stability due to its high elasticity.

As for the possible finishes is often found in satin finishes and colors including white, ocher, black or tennis court green. The white base allows her perfectly colored with universal tints to paint to water, and no problem to mix with other types of plastic or acrylic paints.

As for use within the art scene, has called attention the many applications that the artist Tom de Groot (1971) has made with this type of material.

Thus, water proofing and stickers to the water allow this young Dutchman, working with a satin and high volume covering material. Similarly, the limitation of material support that exaggerated volume of paint is not inconsistent with elastic supports such as canvas, with the minimum guarantees to save the contraction and dilation of the support. It also highlights to skip the continuously rigid limits of the painting format, continually seeking organic overflows of coatings on the rack.

16.5.2. Synthetic enamel

The synthetic enamels have a lot to do with the progress that the chemical industry managed to achieve in manufacturing car paint. Thus in 1933, the old nitrocellulose based paints, less opaque and less resistant to weathering, were gradually replaced by synthetic paints based on alkyd resins, with the same application technique (spray gun) managed greater ability to fillings and a glossy finish that did not need polishing. These paintings were improved until highly resistant films, thus shortening considerably the drying times demanded. There are finishes of a component which, once applied, dried rapidly by contact with air. Although its implementation is simpler, the result generally is not as good as the result of polyurethane. However, if there is little experience, you will get good results because it is a product more easily to apply and dilute.

Currently there are countless variations of synthetic enamels can find high quality antioxidant and glossy finish enamels with great power against corrosion. Easy and clean to apply, does not leak as much as conventional enamels and has more density and texture. Directly on oxide decorates and protects from oxidation iron and steel surfaces without the need for prior antioxidant preparation. Some contain polyurethane which significantly increases its hardness against scratching and rubbing. It is suitable for both outdoor and indoor use and has drying times ranging from 3-4 hours, allowing its repaint in less than 24 hours.

The use of synthetic enamels by contemporary artists is no longer a rarity, thus, to the aforementioned Pollock and Frank Stella can add a host of authors who are attracted by the brightness and typical colors of this type of paint.

On the international scene we can mention many other artists such as Markus Weggenmann (Switzerland, 1953). In his later work applied high gloss paint similar to those used for cars. The aluminum brackets he works with not only increases the brilliant and lightly effects so that the pieces become the viewer's own reflection, and of the exhibition space.

The originality of traditional painting is behind, so the author instructs a craftsman who moved a few small sketches previously made by computer. The surface free of any gesture, and his aloofness, make his abstractions, rather than a subject in itself, an abstract idea to understand the painting.

Moreover Ruth Root (Chicago, 1968) employs the enamel on irregular aluminum panels. The enamel is alkyd enamel with a glossy finish with which gets a particular softness in texture finish. In his paintings there are references to abstraction and Pop and artists like Piet Mondrian and aluminum panels by Ellsworth Kelly.

Regarding the national scene, it is interesting to name contemporary artists such as Kribi Heral (1967). This Alicantine painter belongs like others such as Juan Cuellar or Joël Mestre to a young generation of Valencian artists who have focused on figurative speech "Neopop". In the case of Kribi Heral, its action is precise and meticulous, using specific aspects of advertising as flat spot colors, gloss and neat finishing of industrial labeling over surfaces such as Plexiglas. This, together with the pure, bright colors that provide synthetic enamel finishes.

Another example on the national scene is Alvaro Negro (Lalín, Pontevedra, 1973). In his case the synthetic enamel is applied on aluminum surfaces and is washed away before they have finished drying, producing suggestive effects.

16.5.3. Lacquers and polyurethane varnishes.

The most common thermostable polyurethanes are foams, widely used as thermal insulators. Among the most common thermoplastic polyurethanes highlight those used in elastomers, adhesives high performance sealants, paints, textile fibers, sealant, packing, gaskets, automotive components, insulation in construction industry, furniture and many other applications.

Among these applications of termoplastic polyurethans are paints and varnishes made from polyurethane and have been very popular in the treatment of wooden floors, hardwood or parquet. Such coatings are waterproof, resistant to abrasion, and longevity. It is also usual combination with pigments such as black smoke in a satin finish provides a not negligible aesthetic performance.

The characteristics shared by all polyurethane coatings are:

- Thermo-rigid: drying by chemical reaction and by evaporation.
- The quality of solid saves diluent.
- High resistance to shock and scratches.
- Increased resistance to chemical agents.
- High gloss and excellent trasparency.
- Soft touch finishing and great power slide.

The paints made with the Polyurethanic system born as a solution to the drying problemof the traditional dried by evaporation of other types of paints such as synthetic enamels. Unlike the latter, the polyurethanes dried by a chemical reaction that generates the proper drying process of the coating. This particular quality in the drying makes it particularly interesting to work on plastic surfaces and acetates as the one hand ensures a fixation and resistance to wear and abrasion good on little porous surfaces and sensitive to the chemical reaction that occurs in the polyurethane paints. On the other hand provides given this chemical reaction and depending on the thickness of the acetate surface a watermark very interesting due to thermal softening of the surface. This effect is very interesting in authors such as Roman Gil. Also Helmut Dorner (GenhenbachBaden, 1952) is a German artist who is known for its frequent use of polyurethane paintings on plexiglass. He learned at the School of Fine Arts in Düsseldorf between 1976 and 1982, having by Professor G. Richter. Characteristics of his work are both gestural paintings constructed of thick layers of oil deep opening as smooth paintings based on successive layers of lacquer outlining an ornamental motive structurally embedded like in constructivism. Both stress the objectual quality of the work thanks to its frame or support, evolving later into addiction of sarcastic or ironic notes.

As for wood lacquers emphasize the contribution of the Catalan artist Gloria Cot usually works with lacquered red and on her particular satin finish on areas of DM.

16.5.4. Spray Paints

The mechanism of spray paint or aerosol goes back to 1790, when they were introduced in France, self-pressurized carbonated beverages. In 1837 Perpigna invented the siphon valve built, tested in the 60's of the same century the first metal spray cans, and patented in 1899 Helbling and Pertsch pressurized aerosols with methyl and ethyl chlorides. In 1926 the Norwegian Erik Rotheim devised a method to spray the product contained in a container and in the 40’s Americans Goodhoue Lyle and William Sullivan developed by spraying fluorocarbons. Edward Seymour

in 1949 invented the canned spray paint, using aluminum for the first time as a color.

Today is presented in a sealed and pressurized container, which contains a ball of metal, glass or plastic, which by stirring mixes the concentrate paint of the background with the propellant gas (Freon, nitrous oxide, carbon dioxide, chlorofluorocarbons ...) from the top. This would be the so-called two-phase system. There are also three-phase systems consisting of a layer of the product located between a layer of liquefied propellant at the bottom, and a propellant gas at the top.

When depressing the cap or applicator button opening a valve -closed until then by a helical spring- which allows the internal pressure to push the paint nozzle, projecting in the form of steam and thereby obtaining a smooth and uniform finish. The consistency of the spray depends on the stirring of the container, the pressure delivered to the applicator, the distance from the support and time to insist on the same surface.

Its relative ease of use -requires no other utensil that the can of paint itself, although some artists have refined their technique to achieve plastic results comparable to those of traditional painting- like its lightness and portability have made the quintessential tool of urban art: signatures, graffiti, murals, stencils. Artists from this environment, such as Jean Michel Basquiat and Keith Haring, incorporated it into the galleries and museums.

Its main drawback is its toxicity and danger of combustion, which can be avoided working with gloves and mask in ventilated places, and preserving the container from long exposures to sunlight or high temperatures. In a progressive manner spray cans have been replaced fluorocarbons by hydrocarbons, to reduce systematically emissions affect the ozone layer.

As for spray paint brands, today the most prominent and used worldwide is the Spanish *Montana*. The reason is that it is awarness that most common spray consumers are graffiti writers and this has led to improvements in the quality of the painting, as in the design of cans, accessories, ... Directing them always in this field. Other brands could be highlighted at European level like Felton, CRC, Sparvar, Belton, Molotov...

As the world of art and its allusions to spray paint, we mentioned to the known Jean Michel Basquiat or Keith Haring, but one of the pioneers of spray paint in artistic painting is Billy Al Bengston (Dodge City, Kansas,

1934) who lived in Los Angeles during the 1960s. During this period he discovered the spray paint, spray technique that can play high-gloss surfaces and finish as well as a wide range of colors derived from the products that the industry began to develop thinking of the growing California market of custom cars.

16.5.5. Luminous paint.

The American artist Lynda Benglis (1941), constantly experiences with expressive forms and new materials or unorthodox. In 1968 performed discharges of latex colors directly on the ground. In 1971, she created amazing formations polyurethane foam attached to the wall, sometimes phosphorescent glow in the dark. These organic structures, through clever lighting effects, extended out of the wall invading the viewer's space. Another artist on the national scene often used fluorescent paints is Fernando Fragua Quiros (1963), an issue evident in the series *"Pares and dispares"* (2007) and presented in the Alexandra Irigoyen Gallery of Madrid.

16.5.6. Pearl effect paint.

The origin of pearl effect paints dates back to the Japanese tradition of elaborate paintings incorporating the grinding pearl from seashells. Pearlescent effect presents in nature, shells, feathers and pearls have long been attracted to men. Thanks to modern technology has been possible to reproduce these phenomena with the help of pearlescent pigments whose base is the mica (SILICATE POTASSIUM-ALUMINIUM HYDROXIDE) Mica coated with inorganic compounds such as titanium dioxide, getting pearlescent effects with a different hue. The resulting pigments are extremely stable in the mediums of more common painting techniques. Thus we find pearlized finishes in both acrylics and alkyd. Likewise, the pearlescent pigments can be categorized into three groups:

<u>Pearly</u>
Fine mica particles are coated with a thin layer of titanium white (TiO2) to produce pearl or silver nuances. When applied on the surface show a metallic effect without changing its hue when viewed from different angle (side mirror or flop). The difference is the height of tone or brightness, i.e., the reflected color will be darker or lighter depending on the viewing angle. Likewise, the metallic effect will be observed more or less enhanced. Given its low transparency and hiding power, for its application, it is needed to mix with other solid pearlescent pigments or apply on a colored background.

Iridescent

Iridescent pigments are very similar to the pearly, and deriving from the particle-coated mica titanium white (TiO 2) and iron oxide or chromium. Show a wide range of shades of gold, copper and green. The iridescent pigments are less transparent and have greater covering power than the pearl.

Interfering

Interference pigments differ from the previous two groups in which the combined effects of refraction and reflection of light on the titanium white which covers produces an effect of colors interference. In interference pigments the mica is coated with titanium dioxide in a specific thickness. With increasing thickness of titanium dioxide, mica color varies, yielding shades of gold, purple, blue, green, etc. These colors are those that reflect the mica, with opposite or complementary colors appreciated by the transmission. This phenomenon of color variation is called dichroism.

Regarding the use of these effects in contemporary pearl painting is interesting name authors like Jus Juschtmans (Belgium, 1952) which is known for his monochrome paintings, capable of expressing multiple messages using the subtlety of different layers of paint (up to 30) superposed on each other. His painting is concerned about gloss and translucent acrylic resin monochrome which is enriched by using large accumulation of gels and pearlescent effect pigments.

Another good example of using water soluble pearl paint is presented by the American painter Peter Halley (1953) works elemental geometric abstract language, but he explains that this refers to a world of cells, prisons and pipelines between the two elements. His colorful compositions cause a sense of instability and optical vibration effects, with different acrylic. So, from that in the 80 start to use the Roll-A-Tex, (a kind of industrial synthetic stucco) has continued to use it to its particular geometric painting. Examples include paintings such as *the Cell with Smokestack & titled Underground Conduit,* 1985. In the early nineties with

works such as *303*, Cooperfund Collection, also begins to use the Day-Glo (Fluorescent Acrylics) provides colors brighter than normal daylight and "light up" with ultraviolet light or black. In 1995 in addition to painting with acrylic Day-Glo and Roll-A-Tex used metallic acrylic paint. The titles are shortened and the images appear to move from the geometry of the labyrinthine streets of a big city, simulate circuits and microchips of a computer. Since 2000, the covering paints are rich above the so-called "Pearlescent acrylic," i.e. acrylic pearlescent effects, as we see in *Anti-Trust*, 2000.

16.5.7. Metallic paints

Not all paintings are equal in terms of visual features and even durability. The called metallic paints are so called because they get a shimmering effect due to the incorporation of metal particles among its components.

Within the evolution of metallic paints prominently the automotive industry. In fact if we study its evolution minimally we can trace the evolution of the main industrial paints with the arrival of the metal body and the start of mass production after World War I, it was technically necessary to get painting processes faster and with lower drying times. Then began to use nitrocellulose paints provided by the chemical industry and applied with spray gun. These paintings were very fast drying, but had other problems were not very resistant to weathering and also eventually overshadowed. In the early 60's began to use another type of resin, acrylic, developing in two directions: the acrylic thermoplastic, but less stable simple application that needed polishing to achieve a glossy finish, and two-component acrylic whose treatment was more sensitive but quickly hardened by baking and making a glossy finish highly resistant. In the same decade also began to paint cars with so-called metallic paints, including aluminum particles in its composition in order to satisfy the desire of the designers to reproduce on the painting of a body a metallic effect.

This new type of painting became very popular but also presented some disadvantages: metal platelets that remained near the surface rusted and fell off with time and it was very difficult to get a good orientation of these during the repainting, which created problems in the repair. In response to the technical need to solve these problems bilayer system was introduced which consists of applying the aluminum pigments of color along with a first coat of paint called "base layer color", then coating everything with a layer of transparent varnish. This system allows a better orientation of the aluminum platelets, improved conditions in the repair and increased protection through the laminated varnish.

But as with every technical advance, not everything that emerges from it is an advantage. A major problem, which recently was recognized as such after a while, was the large number of organic solvents that were spreading in the atmosphere to the painting. Note that in the base paint proportion of these diluents reached 85%. These organic solvents, hydrocarbons, petroleum distillates are these paintings that provide most of its advantages, but during the application and then, in the process of drying, evaporated and the vapors are the cause of environmental pollution.

The high growth of the world fleet in recent years and the consequent and alarming increase in pollution levels claimed that seek an alternative solution. This solution, no doubt, was the water. With the use of water as main element in the composition of automotive coatings has been a significant step towards the elimination of environmental pollution caused by organic solvents.

The vast majority of car manufacturers around the world currently uses in its manufacturing plants water-soluble paints, and if it is true that in many countries using this type of paint is confined to the factory painted in countries Most Europeans in the repair shops also use water-based paints.

In large part, this growing environmental concern has led to the creation of new water-soluble metallic paints and are applied and not only on metals but even as is the case of the plastic paints drawn up by Bruguer, on walls.

As regards the application of metalized paints of the automobile industry, it is interesting to quote the young American artist Vincent Szarek (1973). In some ways natural heir of others that in the past used the vacuum modeling and Craig Kauffman. His work is characterized by a type of building halfway between painting, sculpture and design. In fact it seems inspired by surfboards and auto parts, both volumes as sophisticated as its palette. The dominant subject of his works is thickened glass fiber using silicone and treated with lacquer-based paints with spectacular metallic finishes similar to those used in the automotive industry and the "tuning".

16.5.8. Silicate paints

Since ancient times, pigments and paints have always been a fundamental element to the service of decorating architecture both inside and outside of buildings. Currently, the range of pictorial coatings for

architectural on the market provides a wide variety composed of different chemical elements or minerals. Among them are paintings with silicate of potash, a mineral compound that provides these special coatings weather resistance, making them ideal for applications stable on exterior walls of cement and concrete. They are used in a water style like acrylic and are guaranteed 50 years on average in the open surfaces. The resistance of the silicate paints against the effects of calcium hydroxide produced by the setting process, allow these pictorial coatings counteract against possible eruptions on the surface of cement may emerge from calcium carbonate and calcium sulfate.

Unlike most existing paints, silicate paints used in manufacturing inorganic pigments and minerals, but this has the great disadvantage of a significant limitation of hues about organic variant.

Among its advantages is its special potential to transpire which is a good flow of moisture. This is because they are paints reinforced with siloxanes, a silicone resin type. On the other hand, is very resistant to light, an important quality if we speak of outdoor use. In addition, some varieties can even be washed.

Another of its most important properties is that they disguise imperfections very well may even fill cracks. Such are indicated to restore other paints, and to cover natural stones, obtaining a very uniform effect. They are well suited for the restoration of old buildings, but also often used in decoration for interior design, achieving surprising effects.

As for its application should make sure the surface you are going to work is clean and completely dry. Before painting, prepare the wall with a primer solution indicated for this type of paint. As regards the preparation of the colors already mentioned chromatic limitation to what should join the difficulty of melting because its color is very fast drying. For this reason, it is important to note that we do the mixing of paint and thinner, one-time, if possible, since, otherwise, it is difficult to find the exact shade again.

It can be painted with either brush or spray and roll, but never will if the sun shines directly on the surface to cover, if it rains or is windy. Usually apply two coats of paint, but always allowed to pass at least 12 hours apart.

Sometimes, there may be sensitive elements around the wall you're going to work, glass, metal or ceramics, should be covered, and if you still get splash, it must be cleaned as quickly as possible with water.

The silicate coating may be exposed continuously to water due to rain, which will make it has a shorter duration. In this case, there are specific products to alleviate it. On other occasions, it can be seen a gloss on the painted surface, which results from an accumulation of silicate, caused by the absorptive capacity of the surface where the paint is applied. To reduce the problem, substances have to remove some of the agents that produce this effect.

This type of paint should be stored in plastic containers only, sealed and stored in a cool place. Being careful, to keep it in optimum conditions up to a year. Although anyone can use, and have a perfect finish, the fact is that a professional will achieve a better result, since this type of substance does not have the same ease of application as the plastic paints.

Finally, in reference to silicate paints consider to be the most sensible choice and lasting if we take charge an outdoor mural on a concrete wall. Now we must bear in mind that this type of paint is more expensive and harder to manage than other types of outdoor plastic paints, his palette is more limited but much more stable to the effect of ultraviolet rays, its appearance matt and oil is closest to the pigment in their original state.

16.6. EXERCISES PROPOSED WITH PICTORIAL MATERIALS.

In developing the portfolio, artist's book posed since the beginning of the course, students will experience at least one of the types of industrial painting below:

- Asphalt acrylic.
- Rubber based paints.
- Synthetic Enamels.
- Polyurethane Resins.
- Spray Paints.
- Luminescent Paints.
- Paint with pearl effect.
- Metallic Paints.
- Silicate Paints.

In these tests are not always immediate results, but it is important that students take a positive attitude towards practical experimentation of painting. We also need to understand the constancy and persistence characteristics of the painting process as staff and the contribution he has a place chance. The student must be aware of these incidental findings

that, although sometimes they can divert the route marked initially, often come to be most rewarding in achieving a personal language. This is important commitment to ongoing dialogue between student and teacher, with the idea that these accidents are used by the student.

Objectives

- To familiarize the student with the look and technical and aesthetic characteristics of non-traditional painting materials.
- Initiate students in experimenting with non-traditional painting materials and their possible combinations with other more traditional materials.
- Take plastic and expressive potential usefulness of unexpected and at the same time systematize its origin to go forming a pictorial repertoire staff.

Valuation criteria

The specific potential to aesthetic level of each alternative and experimental and technique and procedure, will be assessed in each of the exercises where the student has addressed it and will have its field of action in the alternative book and free exercises of the course. The numeric reference is variable but in the case of portfolio or alternative book will be valued very highly in this research project staff. The criterion is the level of experimentation developed, creativity and originality, and the systematization and documentation of achievements, this will encourage the student to complete a data sheet indicating the references of the material used, origin and description, time drying and observations on the alterations in the process of application.

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