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SURPRISES DURING THE RENOVATION OLD STRUCTURES

Keywords: coating renovation, corrosion protection, surface preparation, slurry blasting

Abstract

Difficulties that may be encountered by a contractor who performs anticorrosive works during a renovation of structures from the forties and fifties of the last century are discussed on the basis of formal and technical problems arisen during the renovation of Śląsko-Dąbrowski bridge in Warsaw. The technique of slurry blasting in temperate climate and usability of standards given in „Slurry blasting Standards” International for an evaluation of surface preparation by this technique are assessed.

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CONTRACTUAL REQUIREMENTS IN ANTICORROSION WORK

Keywords: FIDIC - International Federation of Consulting Engineers, professional liability, shared risk allocation, contract agreement, letter of tender, specifications, schedules, quality assurance, arbitration, mediation, references area, product data sheet, recommended use, technical expertise, constancy of covering, corrosivity of atmospheres

Abstract

The problems of signing the guarantee agreement for the durability of corrosion protection of painted steel structures has been presented and the results of wrong prepared technical (both project and fabrication) documentation have been discussed. The lack of professional liability for the damage caused by the negligence as well as lack of professionalism is a serious problem. Despite many actions taken the quantity of faulty performed corrosion protection has risen and has become significant not only to the specialists but also to the whole society.

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PROBLEMS CONNECTED WITH EVALUATION OF PAINT COATINGS ADHESION

Keywords: paint coatings, adhesion, cohesion

Abstract

Problems occurred while doing investigation of paint coatings adhesion / cohesion (by pulloff, cross-cut and x-cut tests) under industrial conditions on the steel substrate – were presented in the lecture. There were also problems connected with interpreting of the results presented. It was found that the main problem was the accurate (acc. to the standard) preparing of the place of measuring for investigation and the correct interpretation of the results achieved. It is advisable to do investigation at the beginning of painting as the results achieved can help to improve the technology of surface preparation and coatings applying.

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EUROPEAN REGULATIONS REGARDING UNIFICATION OF FIRE CLASSIFICATION FOR BUILDING PRODUCTS AND TESTING METHODS

Keywords: regulations, building products and construction elements, fire classification, fire testing, harmonized standards, technical approvals, CE marking

Abstract

In the paper the European regulations regarding fire properties of building products essential for determination during building product's fitness for use assessment in order to CE marking are presented. Fire classification and testing methods system is characterized. The actions taken in European Union in order to unification of the approach to the building product's assessment in the scope of fire properties. The foreseen changes in new draft of regulations submitted by European Commission to European Parliament are indicated.

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**METHODS OF FIRE RESISTANT TESTING OF PAINT COATINGS
AND STRUCTURES IN SHIPBUILDING.
LEGAL BASIS AND REQUIREMENTS**

Keywords: fire resistance, paint coatings, shipbuilding structures

Abstract

The paper presents the fire safety requirements to be met by paint coatings for ship accommodations and fire-resistant ship structures (decks, bulkheads, ceilings, doors and etc.) as well as fire test methods of these products.

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HOT-DIP GALVANIZING AND PAINT COATINGS COUPLING IN DUPLEX SYSTEM

Keywords: duplex system, hot-dip galvanizing, paint coatings

Abstract

Duplex system is a special kind of corrosion protection of steel items and structures. The system consists of metallic and non-metallic layers. Metallic layer is a zinc coating which is put on a steel surface by HDG (hot-dip galvanizing) or metalizing (zinc thermic spraying), non-metallic coating is a paint coating. Joining both of these coatings to steel provide longer service life and give stronger protection in high aggressive environment. It is due to a synergistic life effect, providing more than 2 times the sum of their separate life expectancies.

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WHY IS IT IMPORTANT TO PROTECT UNDERGROUND STEEL GAS PIPELINES WITH INSULATING COATINGS OF HIGH QUALITY

Keywords: cathodic protection, insulating coating, coating defect, remote monitoring of cathodic protection, galvanic anodes

Abstract

In this work the authors have presented pros and cons of employment of insulating coatings of high level tightness as far as anticorrosion protection of underground steel pipelines is concerned. The advantages of using such coatings overwhelm their potential negative aspects. The employment of high quality insulating coatings frequently results with the decrease of both investment costs and anticorrosion protection application. It also causes an increase in efficiency of the protection mentioned above and leads to the elimination or at least significant reduction of various difficulties which might occur when using cathodic protection. For example, using insulating coatings of high level tightness enables remote monitoring and use galvanic anodes in cathodic protection of far-reaching pipelines. In addition, the requirements of the national law in Poland regarding anticorrosion protection of steel gas pipelines have been outlined.

Władysław Janik

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SYSTEMS OF INTRODUCING AND APPLICATION OF FIRE PROTECTION PRODUCTS REQUIREMENTS FOR INDUSTRIAL OBJECTS

Keywords: fire protection, fire isolation, fire barrier

Abstract

The necessity to use specific kinds of products in the building industry is a part of a broad issue of fire protection and is an element of actions taken preventively in order to minimise fires or their results. Preventive regulations set technical standards for buildings, structures, installations and equipment on fire protection. These regulations also determine standards of design, building and safe operation of buildings and equipment. They also determine the ways of control of these by the State Fire Departments. The article describes the regulations on protection of steel structures with respect to fire protection .

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SELECTION OF ELECTRICAL RESISTANCE CORROSOMETRY SYSTEM FOR CATHODIC PROTECTION EFFICIENCY MONITORING

Keywords: ER corrosometer, ER probe, corrosion monitoring, cathodic protection

Abstract:

The review of the currently available portable ER corrosometers and ER probes for corrosion monitoring of the underground structures has been presented. They were analysed in the aspect of a proper system selection for cathodic protection efficiency monitoring. The demands for an accuracy of the corrosometers working with the selected ER Probes have been specified to verify the corrosion rate decrease of the cathodically protected structures at a level of 10 $\mu\text{m}/\text{year}$ with an error below 20%.

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APPLICATION OF DCVG AND SOIL RESISTIVITY MEASUREMENTS FOR GAS PIPELINES REHABILITATION

Keywords: DCVG measurements, gas pipeline rehabilitation, coating faults selection

Abstract

The application of DCVG and soil resistivity measurements for gas pipeline rehabilitation has been described. Results of applying of these measurements for rehabilitation of 130 kilometers gas pipeline with bitumen coating has been presented

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THE MAINTENANCE ANTICORROSION WORKS OF NEW GENERATION PAINT SYSTEMS ON STEEL BRIDGES – INFLUENCE OF THE QUALITY OF WORKMANSHIP AND PAINTS CHARACTERISTIC

Keywords: Anticorrosion protection, maintenance of anticorrosion systems

Abstract

Since more than 10 years on the big steel bridges the anticorrosion system consists mainly of epoxy/polyurethane coatings (often applied on hot spray zinc layer). Expected durability to the first renovation is more than 15 years. Up to now one has few experiences with the maintenance of these systems. There are only optimistic opinions of the paint suppliers. In the 2008 the first big renovation was made on the bridge with the surface above 50 000m². It was planned as topcoat renovation because of wide delamination after winter cold weather. A lot of unexpected difficulties were met during the works. Part of them appeared because of improper technology during the anticorrosion works on the new construction (long overcoating time of epoxy coating given by paint supplier, which resulted with next coat weak adhesion). Some were connected with the quality (property?) of the paints, other with the quality of the supervision and anticorrosion work on the new construction. The renovation technology were changed during the maintenance works trying to solve new problems and find the suitable products. The lecture will describe these problems and proposed solutions.

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SAFE COATING COMPOSITE ON THE ISOLATED METALLIC BASE FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Keywords: composition of liquid paint, coating composite, adhesion, corrosion, electrostatic protection, antistatic properties

Abstract

The coating composite is formed by a composition of liquid paint on a metallic base, containing, among other, anticorrosion and antistatic pigments. The model coating composite has been described. A model section of the layers coating composite has been presented, with special attention focused on the properties of the boundary composite nanolayers.

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SLURRY BLASTING FOR STEEL AND CONCRETE SURFACE PREPARATION

Keywords: slurry blasting, costs of surface preparation

Abstract

The experiences of the company which makes surface cleaning for anticorrosion works using special slurry blasting technology Kwikblast System are described.

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QUALITATIVE AND QUANTITATIVE ANALYSIS OF FIRE – RESISTANT PAINTS BY INFRARED SPEKTROSCOPY METHOD

Keywords: FTIR, fire-resistant paints

Abstract

Environmental claims and technical and toxicological extracted application the high standards of qualitative analysis and quantitative composition of materials used in every industrial technology. This analysis often concerns a molecular composition of used materials. In that group of physical – chemical methods is IR spectroscopy, which successfully has found the application in qualitative and quantitative estimate of compound mixtures, such as commonly used fire – resistant paints. The purpose of paper is to show the total usefulness of FTIR in qualitative and quantitative analysis of fire – resistant paints.

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THE INFLUENCE OF THERMAL SPRAYING PARAMETERS ON THE METAL COATINGS COSTS

Keywords: Thermally sprayed coating, spraying efficiency factor, material loss, spraying distance, coatings adhesion

Abstract

The tests results of the influence of spraying distance, metal type and atomizing chamber type in arc spray pistol on material loss (it means also costs and time) are shown and discussed. The test were made according to PN-EN ISO 17836 standard. Too big spraying distance could increase the material cost even twice. The use of Zn-Al instead of Zn could decrease the costs of 10-12%. The importance of atomizing system was underlined.

Agnieszka Dobek-Halman

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ANTICORROSION SYSTEMS VERY-HIGH-SOLID AND SOLVENT FREE FOR THE PROTECTION OF STEEL AND CONCRETE CONSTRUCTIONS

Keywords: corrosion, anticorrosion protection, layers, PN EN ISO 12944, steel, concrete, constructions, airless spraying, Sa 2,5, High Solid, LZO, VOC, polyurethane, epoxy, roller

Abstract

The firm novatic is a producer of paintings for each kind of industry. Through the application of paint with high solid particle content (High Solid paint), solvent free and waterborne we receive coating systems with high adhesive dry thickness of the whole system, with very high anticorrosion protection, persistence of the system, as well using this kind of paint we take care of the environment and we perform the directive of the volatile organic compounds. The speed of application, the tolerance of worse surface preparation and the possibility of „wet in wet: application results in quick working and its high effectivity. In this lecture we present you two patented examples of the paint technology of steel and concrete wins towers by using of paint of novatic.

Kazimierz Paplinski

Dörken MKS – Systeme GmbH&Co. KG

ZINK LAMELLA COATING APPLIED NON – ELECTROLYTICALLY

Keywords: Metal coating proces

Abstract

For over 25 years DELTA-MKS® – Systeme GmbH & Co. KG, produces and markets micro layer corrosion protection systems and shares his knowledge about application technique and coating technology with its more than 120 licensees applying the products. These systems are mainly used in the automotive industry but also in the aircraft industry, building industry and other industries. The product range consists of zinc flake coatings and inorganic or organic topcoats with multifunctional properties used for coating of parts made of high tensile steel such as fasteners, springs, clips and stamping parts to fulfil various customer requirements. Today DELTA-MKS® – Systeme is an innovative leader in nonchrome micro layer corrosion protection systems.

Grzegorz Król

Sylwia Jordan

Anna Kolecko

Savepol Poliuretany Sp. z o.o

APPLICATION OF POLYURETHANE SYSTEMS ON THE BUILDING SITE – PROBLEMS AND SOLUTIONS

Keywords: corrosion, polyurethane, anticorrosive protection, coats, industrial infrastructure, containers, steel, constructions, airless spraying

Abstract

The experience, knowledge and monitoring of the technological market for requirements of many projects caused that the Savepol Poliuretany Sp. z o.o. has specialized in carrying out the professional anticorrosive protections of the steel structures. There had been worked out modern solutions of problems, which one can meet during the application of painting systems both in the factory and on the building site. These difficulties are related to the type of protected construction, a choice of the suitable protective system, an unfavourable influence of weather conditions, an improperly prepared surface, errors during the application of the coat and damages during the transportation and montage of the particular elements. A highly important factor that is decisive about the quality of executed protections is the knowledge about the corrosion and protection against her as well as the acquired practical experience. The systematic modernization and expansion of the machinery stock, the regular participation in conferences and specialist courses cause that the firm is able to adapt itself to quickly changing expectations of the investor. Services in the rust-inhibitive line are provided by qualified workers and superintending engineer personnel.

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HOT-DIP GALVANIZING - EFFICIENT ANTICORROSION PROTECTION

Keywords: hot-dip galvanizing, anticorrosion protection

Abstract

Galvanizing industry plays an essential role in the national economy. To a great extent it contributes to the protection of environment and natural resources. Steel corrosion causes both great economic loss and resources and energy use. Galvanizing companies provide the most efficient anti-corrosion layer, which protects steel against atmospheric corrosion for decades. The galvanizing process results in a metallurgical bond between zinc and steel with iron-zinc alloys. The coat of zinc ensures resistance to attrition and mechanical damage.

A hot-dip galvanized coat lasts on average 30 – 50 years in a neutral chemical environment. Such a coat minimizes the costs of using the product.

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ANTICORROSION WORKS ON THE HIGHT STEEL CONSTRUCTION

Keywords: IRATA International Industrial Rope Access Trade Association, rope access, descent and ascent, work in suspension, work positioning, anchor rigging points, risk assessment, corrosivity of atmospheres, slurry blasting, medium vehicle, coating material, compatibility, adhesive, brush mark

Abstract

The typical requirements are given and discussed of anticorrosion works on height constructions with difficult access. The products, technology and supervisions are described. The rules of IRATA International Industrial Rope Access Trade Association for these works are shown.

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PROTECTION OF METAL CONSTRUCTION MATERIALS AGAINST CORROSION AND METHODS OF TESTING ANTICORROSIVE COATINGS IN THE LIGHT OF THE EUROPEAN UNION DOCUMENTS

Keywords: corrosion, metallic coatings, organic coatings, methods of testing, durability

Abstract

The methods of protection of metals against corrosion can be divided into active and passive protection. The division has been shown. The most common methods of protecting metals against corrosion have been presented. Selected methods of testing (according to the PN-EN, PN-EN ISO standards) the continuously organic coated (coil coated) metal products. The question of the durability of the coatings has been considered according to harmonized standards.

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REGULATION OF EUROPEAN COMMISSION DOCUMENTS REFERRING TO ANTICORROSION PROTECTION IN INDUSTRY AND CONSTRUCTION

Keywords: technical approvals, EOTA, building law, technical recommendation, construction products, anticorrosion protection

Abstract

Regulatory requirements from European Committee documents applying to construction products were represented with a special consideration products used as a protection of building structure. Also was discussed national assessment system of products used as a protection of steel, aluminium, concrete and wooden constructions, besides principles of entry products on market. National requirements were introduced according to ITB actions taken for EOTA and works made for engineers responsible for anticorrosion protection. methods of protection of metals against corrosion can be divided into active and passive.

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PROBLEMS CONNECTED WITH TRAINING OF CATHODIC PROTECTION SPECIALISTS ACCORDING TO REQUIREMENTS OF PN-EN 15257

Keywords: cathodic protection, training, personnel certification

Abstract

The standard established in 2006 by CEN concerning qualifications and certification of cathodic protection personnel imposes its implementation in member states to the end of 2011. In the paper the state of works has been presented on implementation of this standard in Poland in comparison with activities in the European Union. The concept has been presented of training and the certification process in Polish conditions. In November 2008 experimental training has been performed of a group of employees of one of the gas-producing companies and conditions have been determined for conducting this type of specialist courses according to principles adopted in the European standard. A number of conclusions has been presented concerning didactic problems connected with training of cathodic protection specialists in Polish conditions.

Wojciech Sokółski

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THE WORLD CORROSION ORGANIZATION GENESIS, MISSION AND GOALS, PROGRAM OF ACTIVITIES

Keywords: corrosion, corrosion control, economic effects of corrosion, World Corrosion Organization

Abstract

The effect of corrosion on development of civilisation in the technical, economic and ecological aspect is the subject of numerous discussions in circles dealing with protection of property and resources from this unavoidable process. Estimates of the effect of corrosion phenomena on society, conducted in many countries, indicate the vastness of this influence primarily on the financial result in economy, but the effect is also known and widely described on the natural environment and health and life of humans. Hence, it is no surprise that more attention is being focused on these problems. Basing on the results of widely performed economic research on corrosion effects in the United States, genesis has been described of the World Corrosion Organization and its mission, goals and the program of activities of this organization

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INTUMESCENT COATINGS FOR FIRE PROTECTION OF STEEL STRUCTURES

Keywords: fire protection, intumescent coatings

Abstract

Intumescent coatings are used mainly for fire protection of steel structures. Intumescent coatings swell when exposed to fire, forming thick layer of char around the steel and insulating it from the heat. This insulating layer slows down a heating of steel structures to the temperature at which they lose structural integrity and collapse and thus enables an evacuation of people from danger zone. The composition, mechanism and test methods of intumescent coatings have been discussed.