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MAIN FEATURES OF PACKAGING

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Packaging is a complex of processes that has several features that, in fact, make it unique and require specific approaches and knowledge. The main features of packaging production include:

1. Strict requirements for the quality and safety of packaging. Packaging materials must meet high quality and safety standards, as they are directly related to the safety and quality of the goods they pack.

2. A wide range of packaging materials and technologies. Packaging uses a variety of materials and technologies to create packaging of various types and shapes.

3. High degree of automation of production. Automated lines and equipment are widely used in the packaging industry to ensure high productivity and quality.

4. Consideration of environmental aspects. Modern packaging requirements include not only convenience and safety, but also consideration of environmental aspects, such as reducing the use of plastic and increasing the proportion of recycled materials.

5. Flexibility and quick response to changes in market conditions. The packaging industry must be flexible and able to respond quickly to changes in market requirements, such as changes in packaging design or increased production volumes.

Regardless of the chosen technology, it should be borne in mind that the production of all types and varieties of packaging is a complex process consisting of

many stages. Successful implementation of projects in the field of packaging equipment production requires special training and a responsible attitude to business. Each individual type of packaging equipment has its own purpose and scope of application. During its development, design and subsequent production, the following parameters are taken into account: the material from which the packaging is made (for example, film products, corrugated cardboard, etc.), structure, design, packing method, features of use, etc. The production of packaging equipment that meets all the requirements dictated by the modern market always requires the introduction and use of advanced technologies.

The complete technological chain of packaging equipment production includes a number of activities from the design of a specific package (in accordance with the characteristics of the product for which it is being developed and the individual requirements and wishes of the customer) to its manufacture on the appropriate equipment. If necessary, it is also necessary to provide the required amount of packaging. Requirements for the production of packaging: each type of packaging is designed to perform a specific or broad task. However, there are some general requirements for packaging materials:

- Sociality. Determines whether the packaging meets the needs of a particular social group.

-Functionality. Depending on the intended purpose, the packaging must protect the contents from adverse effects such as mechanical shocks, moisture, heat and bright light.

- Reliability. It is determined by the ability of the packaging material to maintain its performance over a certain period of time.

- Aesthetic properties. Boxes, bags and other packaging materials must have an attractive appearance, and special aesthetic requirements are imposed on gift packaging.

- Ergonomics. The packaging should be convenient for human use. This is especially true for packaging used in catering establishments, including disposable tableware.

- Environmental considerations. An important requirement is the absence of emissions harmful to the environment.

- Image and advertising components. The packaging must be made of materials that are easily printable. Packaging can serve as an advertising tool if it has a logo, slogan or other symbol of the manufacturing company. Gift boxes should be marked with a themed picture, a greeting card or a memorable date. You can also use holiday ribbons for this.

- Information. Containers intended for specific products must be labeled with identifiable information about the manufacturer, product composition, shelf life, etc.

Packaging is necessary for almost all food and non-food products. This is due to the fact that it is the packaging material that preserves the quality and taste of the product until the expiration date, and also protects it from the effects of various factors during transportation, sorting and storage.

When choosing packaging materials, the main requirement is to accurately match the characteristics of a particular product. The most common types of packaging materials include: kraft paper bags, sealed packaging film with a twisting effect or a heat-sealable layer, convenient paper bags. Paper packaging materials are recommended by manufacturers for use in the packaging of food, various small household items and other basic necessities and are usually made of moisture-resistant paper. Paper packaging materials are considered the most environmentally friendly and affordable. Twist film used for packaging confectionery and ice cream has advantages such as ease of use, affordability, tightness and attractive appearance. What is packaging equipment? Specialized equipment designed to automate the production process during product packaging. It can be used for various types of products and ensures safety during storage and transportation. The packaging protects the product from damage, dust and dirt, preserves its physical and decorative properties. Packaging equipment automates production processes and saves time and money by complementing or completely replacing manual assembly. The scope of application. The use of such equipment is relevant for all types of goods, including food, non-food, plastic, glass and metal. They are used to pack cans, cans, bottles and boxes. Packaging machines are also used as auxiliary equipment in various production processes. The equipment produces both individual and block packaging for each product. The materials used are shrink films of various types and thicknesses, including PVC, polyolefin, polypropylene film (PP) and polyethylene film (PE).The shrink equipment is characterized by high performance and a wide range of configurations. As a rule, they are in demand by suppliers in retail chains and in wholesale warehouses. By using shrink packaging machines, factories can greatly simplify their work, make products more compact and convenient for transportation and the end user. Thus, packaging production is an industry that requires high technical competence, strict quality and safety control, as well as the ability to innovate and respond quickly to market changes.

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VERFAHREN ZUR ABWASSERBEHANDLUNG DER GALVANISCHEN PRODUKTION IN DEUTSCHLAND

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Der Schutz der Umwelt und die Erhaltung natürlicher Ressourcen sind ein notwendiger Bestandteil der industriellen Produktion. Daher sollten Abwasser, das während des Herstellungsprozesses entsteht, wie Waschwasser und Konzentrate, gründlich gereinigt werden, bevor sie in das öffentliche Kanalnetz entleert werden [1].

Der Prozess der galvanischen Produktion wird von der Bildung von Abwasser begleitet, das mit Schwermetallen kontaminiert ist. Es gibt verschiedene Methoden zur Behandlung von Abwasser aus Schwermetallionen, um dieses Problem zu lösen.

Zu den gängigsten und effektivsten Methoden der Abwasserbehandlung gehören:

1. Verfahren zur chemischen Abscheidung durch Zugabe verschiedener chemischer Reagenzien zum Abwasser, das Schwermetallionen (NaOH, Kalk usw.) enthält. Schwermetallionen reagieren mit Alkalionen und bilden einen Hydroxid-Niederschlag, der in Wasser praktisch unlöslich ist. Das Sediment wird vom Wasser getrennt und dabei Schwermetallionen entfernt. Nach der chemischen Abscheidungsmethode kann das Wasser in der Produktion wiederverwendet werden.

2. Der Prozess des Ionenaustausches. Diese Methode wird zur Behandlung von Abwasser verwendet, das Cyanide enthält. Freie Cyanid-Ionen können zuerst in Metallionen umgewandelt werden, Ionenaustauschharze als Ersatzstoffe. Ferner wird das Abwasser durch eine Kolonne von gemischten Kationenaustauscherharzen und Anionenaustauscherharzen geleitet. Danach kann das Wasser wiederverwendet werden.