

Hygiene Guide for Adhesives for Use in the Food Industry

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Put together by the Technical Commission for Paper and Packaging Adhesives (TKPV) at the German Adhesives Association (IVK), Düsseldorf, Germany

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Foreword

With the Regulation on the Hygiene of Foodstuffs 852/2004/EC, European legislation has tackled the harmonisation of the different standards systems in Europe. The purpose is to implement quality criteria in order to protect the quality of products and consequently the health of citizens. An aim that is, as it were, inherent in packaging, because it protects the product from damage and contamination.

In this sense the packaging industry and the food industry have always worked together closely. Adhesives fulfil an important role in this without making themselves obviously visible. They ensure the functionality of the packaging, supporting the protection of product and consumer. What is crucial for safeguarding the hygiene standards is that everyone involved in the net product, from risk analysis through process control to the correct selection of raw materials, works together closely. This requires a concept that can also be integrated in a QM system in accordance with ISO 9000 ff.

The Technical Commission for Paper and Packaging Adhesives (TKPV) has developed this code of practice for the members of the German Adhesives Association (IVK)* in their role as service partner to the packaging industry and the food industry. It gives factual and legal recommendations on how the increasing hygiene demands on the adhesives that are to be delivered can be fulfilled, without an expensive additional outside system with external certification having to be set up beside the existing quality assurance system. With its help the member companies of the IVK can establish a hygiene management system to guarantee the required hygiene standards.

The guide was worked out following the "Guidelines for hygienic production of plastic food packaging - Edition 2000**" and in close collaboration with the Plastic Packaging Association***. We are extremely grateful for this support. For the English translation we thank National Adhesives****.

In addition to this, the TKPV has adopted a sample letter to customers on the topic of "Hygiene management", in which reference is made to the guide. The sample letter is included in this guide as an appendix.

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The remit

The adhesives industry has supplied the food industry for a long time both directly and indirectly via packaging materials manufacturers with a multitude of products, which are used for the manufacture of food packaging. These adhesives have proved themselves excellent at safely and hygienically dealing with food packaging without any problems at all levels of processing and distribution up to the end user.

The high quality standard of the adhesives is guaranteed e.g. by the application of quality management in accordance with DIN EN ISO 9001. New quality requirements were added for the food industry by the [Regulation on the Hygiene of Foodstuffs 852/2004/EC](#), with which the European law for the hygiene of foodstuffs was harmonised. In this regulation the food industry is obliged, under the appropriate application of the so-called HACCP (Hazard Analysis and Critical Control Point) concept, to take measures for the hygienic production of foodstuffs.

Out of this, far-reaching demands from the food industry on the packaging manufacturer can arise and consequently also on the adhesive manufacturer. This guide, is intended to inform the manufacturers of adhesives about the facts and to give them help with how they can adapt themselves to the new situation.

Situation regarding hygiene law and HACCP concept

HACCP (Hazard Analysis and Critical Control Point) is a concept that has been developed for the food industry for the carrying out of in-house controls within their operations. An internationally binding version of the HACCP concept is defined in a set of rules from the UN Food and Agriculture Organisation and the World Health Organisation as "a system that serves to identify, analyse and control significant health hazards due to food contamination".

The application of the HACCP concept in the food industry requires the creation of a HACCP plan taking the following HACCP principles into account:

Performance of risk analysis:

- Determination of Critical Control Points (CCPs)
- Definition of one or more limits
- Definition of a monitoring system
- Determination of corrective measures in the event of non-control of CCPs
- Documentation of all instructions and results

This short characterisation of the HACCP concept suffices to demonstrate that it is not directly applicable to the adhesives industry. That is why the requirements of the Hygiene Regulation and the corresponding laws of the member states expressly refer to industrial premises, devices, appliances, equipment and staff in food operations themselves and not in the operations that supply them.

However, the food manufacturer is therefore supposed to check where are the critical points during the food manufacturing process at which contamination of various kinds can spoil the food with regard to its quality and its hygiene status. As a part of this consideration of the production process is included the packaging and the fabricated materials used therein, which are supposed to keep the food clean and in a hygienically perfect condition from the end of production until consumption by the consumer. The packaging itself must therefore be clean and hygienically perfect, which in turn can only be guaranteed by the use of hygienically perfect components.

This is the reason why, if the food manufacturer ascertains for a certain foodstuff that the packaging can be a CCP (Critical Control Point), he will demand appropriate information and, if necessary, measures from the packaging manufacturer as well, so that he can assess the hygiene risk and, if necessary, minimise the risk. As a rule, adequate statements confirming risk-free use, are

- Declaration of harmlessness in accordance with the Guideline 1935/2004/ EU and its amendments
- Information about the company's quality assurance system,
- Binding product and delivery specifications.

If requested by the customer, it is also necessary to carry out and confirm defined special arrangements, which relate to hygienic aspects of the adhesives to be delivered and its transport and external packaging.

How can the customer's hygiene requirements be guaranteed?

A company hygiene management system, integrated in the existing quality assurance system, can in most cases be an adequate contribution to risk minimisation. It is advisable to incorporate the application of this guide and the documentation about it into the quality assurance system e.g. in accordance with DIN ISO 9000. The fact that this guide is being followed gives the food manufacturer the guarantee that risk minimisation during production of the adhesives is being undertaken with the necessary care.

The elements of such a system, which is not to be confused with "HACCP", can be:

- Employee hygiene/infectious diseases/infections
- Work clothing/headgear
- Eating, drinking, smoking in the workplace
- Avoidance of foreign body entry (glass fragments, metals, etc)
- Protection against insects, rodents, etc.
- Cleaning of production, storage & other areas

The basis for guaranteeing all hygienic requirements of the adhesives to be delivered should therefore not be the application of an expensive additional outside system, but the existing quality assurance system. Besides general elements of the company hygiene management, adhesive-specific concepts can be integrated through using HACCP principles, for example identification and monitoring of so-called CCPs.

The fact that adhesives are produced from many different components using very different processes and intermediate processing steps has to be taken into consideration. The guide is therefore to be used at all stages in the appropriately modified form, as the chain of the stages of manufacture up to the consumer in the food industry must not be broken.

The suggested hygiene system is not only suitable for the manufacturing process of adhesives, but also for other branches of industry with corresponding hygiene requirements. Large sections of it were therefore based upon or taken from the Plastic Packaging Association's guide.

1. Hygiene management

Hygiene management should be part of and extend the management system, including the quality management system implemented in the company.

1.1 The person responsible for hygiene

An appropriately trained employee from middle management should be appointed as the person responsible for hygiene. In small firms this job can also be assigned to the person responsible for quality management (QA Manager).

The person responsible for hygiene management is responsible for the functioning, the control and the continual optimisation of the hygiene management system. He provides for regular internal inspections of the hygiene conditions and is the contact for customers in matters to do with hygiene (e.g. customer queries, audits).

1.2 Hygiene monitoring

Depending on the size of the operation, the person responsible for hygiene management is assisted by a hygiene team made up of suitable employees, who are also trained for this task and have the necessary overview over the different parts of the operation, in which this guide applies.

This team and the person responsible for hygiene management meet regularly to check results and establish measures that have become necessary. The person responsible for hygiene management is responsible for monitoring such actions and reporting on progress to the hygiene team.

The hygiene management system must be inspected regularly and further developed by the hygiene team in the required way.

1.3 Documentation

The application of the hygiene management system including all activities and monitoring measures must be documented in a suitable manner so that meaningful audits can be undertaken (see also section 9).

2. Requirements for the employees

2.1 Personal hygiene

a) Every employee, who may during the production of adhesives for the food industry come into contact with the latter, must pay special attention to hygiene. This does not just include persons, who come into direct contact with the finished product, but everyone who through direct or indirect contact with raw materials, machine parts, intermediate products etc. can transfer dirt and germs to the adhesives and therefore to the packaging and the foodstuffs.

b) Personal hygiene lies primarily with the employee himself. If necessary, he should however be especially encouraged in this by the management (see 2.2).

c) The person responsible for hygiene management guarantees that the staff in the identified areas of the operation wear suitable and clean protective clothing. Clothing also includes, if required, appropriate shoes and headgear. The internal company safety regulations are to be followed in every case.

d) If an employee is suffering from an infectious disease or if this has to be assumed, he is to inform his line manager, who in consultation with the company doctor will take appropriate

measures.

e) Employees who have wounds, skin infections or injuries to their hands or arms must wear suitable dressing material checked by the company doctor on the affected places and change it regularly.

2.2 Hygiene training

a) All employees must be adequately informed about the firm's basic position with regard to hygiene principles on the introduction of the hygiene management system, with special consideration of their current work place. In the case of all new appointments there should be a short induction, which is then followed by a comprehensive training course within 6 months.

b) The contents of the training course are determined by the hygiene team and are continuously adapted to changing situations and requirements. On-going continuing training of staff can be included in already existing training courses such as e.g. safety lectures or quality training courses. As an aid, the hygiene regulations are to be displayed at suitable locations.

2.3 Customers and other visitors

The appropriate factory managers are responsible for ensuring that customers, outside staff or other visitors to the factory are suitably informed about the hygiene requirements and follow them, for example by wearing the prescribed protective clothing.

3. Recreation rooms and sanitary facilities

The legal regulations in the member states of the EU for recreation rooms and sanitary facilities for employees should to a large degree also fulfil the requirements for hygienic work. Special attention should however be paid to the measures listed below.

- For the employees there should be lockers for street clothes and personal belongings outside the production rooms. Protective clothing is to be stored separately from this.
- Eating and drinking is strictly only permitted in rooms provided for this purpose, which are physically separated from the production area. Only drinking fountains without cups can be installed at suitable locations in the production area. Great care is to be taken that clothing or shoes are not contaminated with food or tobacco. If necessary, they are to be cleaned or changed before returning to the work place.
- Smoking and chewing gum is also only permitted in rooms designated for this purpose, which can be identical to those named above.
- The toilets must as a minimum fulfil the general legal regulations.
- There must be hand washing facilities in the recreation rooms or rooms adjacent to them and in the toilets. Before returning to the work place the hands should be cleaned. Where the risk analysis has identified a particular risk, further hand washing facilities are to be provided in a suitable location near the appropriate work place.
- All recreation rooms and the toilets are to be cleaned and ventilated regularly and in agreement with given guidelines, whereby the ventilation is to be to the outside.

4. Premises and machines

4.1 Cleaning

a) Buildings and plant must be cleaned in accordance with the cleaning regulations laid down, which should include the following:

- Establishment of all premises and machine parts, which are to be cleaned according to a schedule,
- Method and frequency of the cleaning,
- Determination of the persons responsible for the cleaning of each area,
- Type and concentration of the cleaning agent, measures in the event of spills,
- Precautions to avoid contamination of the product,
- Records of the cleaning (see also under 9).

b) The buildings should be such that they can be cleaned effectively. Everything should be kept in a good condition. All internal parts of the production rooms should be such that contamination of the products by foreign bodies is avoided. All equipment and machines must be kept in a clean, working condition.

c) Any waste is to be removed as soon as possible and put in the appropriate container. Scrapped and no longer working machines or machine parts should be removed and stored separately from raw materials and products.

d) No strongly smelling disinfecting and cleaning agents should be used for cleaning.

4.2 Ventilation

a) There should be suitable ventilation equipment to remove air particles such as smoke and steam or surplus heat safely.

b) Ventilation should be sufficient to prevent the build up of condensation. If filter systems are used, they should be accessible for inspections, cleaning and replacement. The air supply from outside to the ventilation system should be installed out of the way of sewage pipes, waste gas and used air systems and dusty areas to prevent contamination.

4.3 Lighting

All production, control and storage rooms are to be well lit to ensure adequate vision there. All lights are to have unbreakable diffusers or covers.

4.4 Maintenance and repairs

Repairs and maintenance work to the building and to machines when production is running must be controlled to prevent contamination. The workmen are first to be acquainted with the hygiene concept.

4.5 Infrastructure

The factory's paths, access roads and indoor equipment and outdoor installations are to be integrated into the hygiene concept in such a way that no risk of contamination comes from them. In particular no rubbish of any kind is allowed to be left lying around. Stipulated footpaths in the production area should be marked as such.

4.6 Physically separated production centres, toll manufacturers, dealers

If production takes place in different production centres or if the product is finished, transferred to other containers or stored by an intermediate trader before being delivered to the customer, this hygiene guide must also apply there in all premises.

5. Risks due to foreign bodies

5.1 General measures

The possible causes of a contamination with foreign substances and foreign bodies of any type must be listed in a risk analysis. The staff are to be encouraged to find and remove foreign bodies and contaminations and to prevent this happening through preventative measures. In the hygiene regulations it is to be established in which cases the factory manager or the hygiene manager is to be informed. The production rooms are to be thoroughly inspected for foreign bodies at determined intervals. Foreign bodies that can contaminate the product also include objects that belong to the production as parts of the equipment or are required for other reasons.

5.2 Incomplete list of possible foreign bodies

Some examples are listed below:

- Glass fragments
- Cutting blades
- Loose nuts and bolts, screws
- Loose small machine parts
- Pieces of adhesive tape, paper, cardboard, wood fragments, labels
- Oil, grease and other chemicals
- Loose bags seals
- Staples
- Hair
- Ear plugs
- Flaking paint
- Pencils, pens
- Pallet fragments and any contamination from pallets
- Small pieces torn or cut off packaging material
- Strongly smelling cleaning agents
- Insects, excrement from birds, rodents, etc.

6. Raw material and products

6.1 Suppliers

All suppliers of raw materials and intermediate products are to refer to the hygiene regulations. Depending upon the product, the supplier must give an assurance with regard to the corresponding hygiene measures and is then included in the list of approved suppliers.

6.2 Storage

a) All materials should be stored an appropriate distance from the walls to facilitate problem-free cleaning, inspection and pest control. The materials must not be in contact with the floor.

b) All raw materials, process materials, intermediate products and finished goods should be stored in such a way that contamination or a pest infestation can be ruled out. Apart from during the manufacturing process itself, all goods should always be packaged and covered. This applies in particular to the finished goods, which are to be tightly sealed immediately after being put into containers. Raw materials in damaged packaging, which could have been contaminated during transport or storage, are to undergo cleaning or be thrown away, if necessary.

- c) Raw materials, intermediate products and finished goods are to be stored separately from other substances, in particular from rejects and waste.
- d) Pallets must be intact and be made of a suitable material. They are to be kept clean, dry and odour-free.

7. Shipment

7.1 Transport

- a) Transport vehicles must be suitable for the transport of materials for the food industry. They are to be cleaned and inspected regularly.
- b) In the case of rental vehicles, the hygiene requirements are to be included in the rental agreement.
- c) All vehicles, irrespective of their origin, are to be inspected before loading.
- d) The careful selection and clearing of the vehicles also applies for internal company transport, e.g. for transport between factory premises belonging to the same firm.

7.2 Pest control

- a) Measures are to be taken to keep animals (insects, birds, rodents, etc.) out of the works, especially out of the areas, which were classified as critical areas in a risk analysis.
- b) An approved pest control firm should be hired for pest control, if the firm has no employees of its own trained for this purpose. The firm hired must be contractually obliged after every visit to make out a written report for the person responsible for hygiene management and to send this to the customer.
- c) If an infestation is found, appropriate measures are to be introduced immediately and continual inspections are to be carried out until removal of the risk is established.
- d) Electrical insect terminators should be installed against insects, this to be done in all locations, which were established as necessary in the risk analysis. They are to be regularly inspected to check that they are in working order.
- e) Every employee is obliged to report the appearance of pests in the buildings or of animals on the factory premises to the person responsible for hygiene management.

8. Microbiological requirements

- a) In general, a routine microbiological inspection is not required for adhesives, as it is not suitable for control or for finding contamination. A microbiological control can though be considered as a quality control instrument to document the adequate protection of the product against microbial contamination. The hygiene management system should be used here as a preventative measure. Under no circumstances are microbiological inspections to replace a hygiene management system.

b) Only where adhesives are used for particularly critical applications can microbiological specifications be useful. In such a case, limits for specially determined micro organisms, a schedule for the drawing of samples and a test method are to be set up bilaterally with each customer. In addition what has been said under 8.a) is also to be taken into consideration.

9. Documentation

a) All regulations, measures and controls in the hygiene management system are to be fully documented, including any call back actions.

b) The records must be kept continuously to prove that the hygiene measures were carried out in accordance with the regulations. These include, for example:

- . • instructions
- . • cleaning measures
- . • contaminations caused by foreign bodies or similar
- . • independent monitoring and audits
- . • customer complaints
- . • internal audits
- . • inspections and audits carried out by customers, authorities or other independent inspectors appointed for this purpose
- . • pest control measures
- . • maintenance, repairs and general engineering work.

c) A list of all preventative measures carried out and all changes in the hygiene management system should be brought to the attention of all employees.

10. Summary

For a long time the adhesives industry has been supplying a multitude of products to the packaging industry and the food industry.

These adhesives have proved themselves as excellent raw materials for the manufacture of packaging to protect foodstuffs at all levels, from production through trading to the customer.

The high quality of the adhesives is guaranteed through the application of quality management systems such as DIN ISO 9000.

With the [Hygiene Regulation 852/2004/EU](#) new quality criteria were set for the food industry. This regulation harmonises the European legislation with regard to food hygiene. The Directive imposes on the food industry measures to produce hygienically perfect foodstuffs with the appropriate application of the [Hazard Analysis and Critical Control Point \(HACCP\) concept](#).

For this reason corresponding requirements can also be passed on from the food industry to the packaging manufacturers and their suppliers. This guide was developed by the TKPV

- to inform the manufacturers of adhesives about the new situation,
- to offer support when adapting to the new requirements,
- to issue procedural rules, which are recognised and approved by members of the IVK.

11. Sample letter

To Customer A, B, C letterhead of the IVK member xyz Sample Street, Sample Town

..... Date
.....

Self declaration on the hygiene management system (belonging to the IVK member xyz)

Dear Sir or Madam,

As a manufacturer and distributor of adhesives we are aware of our special responsibility and hereby declare that we have set up a hygiene management system following the EU Regulation on the Hygiene of Foodstuffs 852/2004/EU dated 29.04.04 and apply this in practice.

This includes for example:

- Regular hygiene instruction of employees, visitors and outside firms
- Suitable work clothing and protective clothing
- A smoking ban and a ban on the consumption of foods in the production area
- Regular cleaning and maintenance of the production, storage and transport equipment as well as the social rooms and sanitary facilities
- Regular monitoring for pests
- Supplier selection also from hygienic standpoints.

All these measures and their results are documented and are examined for their effectiveness through regular internal audits and management reviews.

We therefore guarantee that the adhesives for application in the food industry put into circulation by our company are procured, manufactured, stored and transported in accordance with the generally recognised codes of practice.

We must point out that the responsibility for testing the supplied products for suitability lies with the end user.

This guide was put together by the Technical Commission for Paper and Packaging Adhesives (TKPV) at the German Adhesives Association (IVK), Düsseldorf, Germany.

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