

# Perfectly seal floor joints and floor coverings



# Floor sealants and their applications



OTTOSEAL®	★★★★★ PREMIUM	SPEZIAL			
	S51	S34	S125	M390	A221 Parkett
	Amine-oxime-based	Oxime-based	Alkoxy-based	Hybrid	Acrylate
PVC, rubber, linoleum, vinyl, etc.	✓	✓	✓	✓	✗
Laminate	✓	✓	✓	✓	✗
Parquet, wood, cork	✗	✗	✗	✓	✓
Concrete	✗	✓	✗	✓	✗
Food-related area (ISEGA)	✗	✓	✓	✓	✗
Areas in which "flame retardancy" is required (B1)	✓	✗	✗	✗	✗



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### The diversity of floor coverings and their special requirements

Floor coverings must meet the widest range of requirements depending on the use. The floor joints and therefore the sealing of the flooring also plays an important role here. The structural design and floors must be protected from damage caused by water, from mechanical influences or chemical stresses. Not only is it important to choose the right sealant here, but also the correct embodiment of the floor joints.

# Planning joints and joint dimensioning

## Planning joints

The right dimensioning of the joints must be taken into consideration already when planning on site. What works for expansion joints in building construction, especially applies to floor joints, since the usage-induced loads on the components are much higher here under certain circumstances. The cause for this may be mechanical influences, such as floor joints that are driven on, or chemical influences, such as from cleaning agents.

In addition to the usage-induced loads already mentioned, swelling, drying and settling movements, moisture-induced length changes and production and design tolerances also need to be taken into account.

Another key point in planning is the [thermal elongation](#). The following example quickly shows how important it is to take the thermal expansion coefficient into consideration. The following formula applies:

$$\Delta L = \alpha \times L \times \Delta T$$

Expansion of an element made of normal concrete in a non-heated storage hall:

- Field size: 2 x 2 m
- Temperature difference: (Summer +35 °C and winter -5 °C) of +40 °C
- Linear coefficient of expansion ( $\alpha$ ) for normal concrete:  $10 \times 10^{-6}$  per Kelvin

$$\Delta L = 0.000010 \text{ mm/mm K} \times 2000 \text{ mm} \times 40 \text{ K}$$

**Thermal elongation: 0.8 mm**



## Useful additional information

Thermal expansion is understood as the length and volume change of a body, caused by a change in its temperature. The degree of elongation of a body depends on the individual material or substance-specific constant, which is called the coefficient of linear expansion or also the coefficient of thermal expansion. To be able to calculate the elongation of a material as a function of a certain temperature change, the coefficient of linear expansion, designated as  $\alpha$ , must be known.

The term floor joints includes joints in the floor surfaces themselves, as well as connection joints between the floor and rising components, such as walls, pipelines, supports, etc. Due to the different variants, the following points are to be noted prior to installation:

- Joint dimensioning
- Stress of the joint after installation:  
Mechanical loads - Chemical loads

### Joint dimensioning

At the time the joint is sealed, the minimum dimension for a sealing with elastic joint sealants for bathroom joints is 5 mm and for expansion joints in building construction is 10 mm and should be limited to a maximum of 20 mm. The dimensioning of the joints depends on the field size of the components to be sealed, the expected temperature influences and the type of joint.

For floor joints, the joint width should roughly correspond to the joint depth. When sizing the joint, a distinction is made between inner joints and outer joints depending on the expected temperature influences:

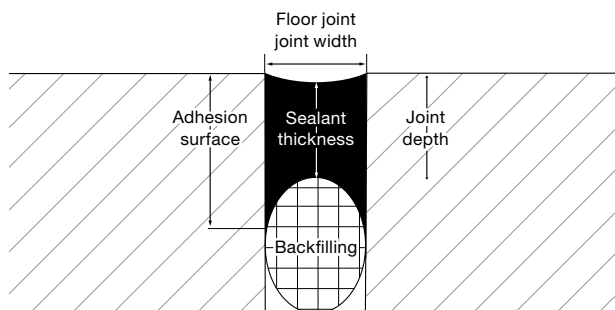
#### Indoor floor joints

Joint spacing	Joint width	Joint depth
2.0m	10–12 mm	10mm
4.0m	10–12 mm	10mm
6.0m	14–16 mm	12mm

#### Outdoor floor joints

Joint spacing	Joint width	Joint depth
2.0m	10–12 mm	10mm
3.0m	14–16 mm	12 mm
4.0m	18–20 mm	15 mm

The boundary is created by backfilling the joint with a closed-cell OTTOCORD PE-B2 back-up foam rod, or alternatively with a PE film if the joints are too shallow.



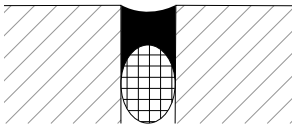
# Joint structure and the right backfilling

The ideal ratio of the joint width to the joint depth forms the basis for a long service life of the joint. However, the prevention of the three-flank adhesion is decisive for the service life.

The sealant must move freely between the two joint flanks. This is the only way that tensile and compressive movements from structural and functional conditions, such as thermal elongation of the joint partners, can be permanently absorbed. If the adhesion of the sealant on the joint base (i.e. on the third flank) is not prevented, the movement absorption of the sealant is significantly reduced. This results in cracks that lead to the complete tearing off or detachment of the sealant.



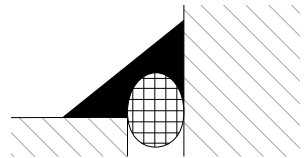
## Examples of the correct use of OTTO back-up foam rods for backfilling:



The diameter of the back-up foam rod should be about 20 % larger than the joint width so that it can be introduced into the joint with pressure and it then remains in an oval shape in the joint.



If there is not enough space for a back-up foam rod in shallow joints, a PE film must be inserted to prevent a three-flank adhesion.



Floor-wall joints are designed as triangle joints. A back-up foam rod is to be introduced to prevent the three-flank adhesion to ensure a proper joint.

# The right back-up foam rod for your application

## **OTTOCORD PE-B2**

The closed-cell  
PE back-up foam rod



Closed-cell back-up foam rod for wet cells and joints outdoors, since no moisture is absorbed (sponge effect promotes the formation of mould).

Please ensure when introducing closed-cell back-up foam rods that the surface is not damaged by sharp tools.

## **OTTOCORD PUR-H-B3**

The open-cell  
PUR back-up foam rod soft



Soft and very malleable back-up foam rod for narrow joints indoors – not suitable for wet cells

## **OTTOCORD PUR-HS-B3**

The open-cell  
PUR back-up foam rod firm

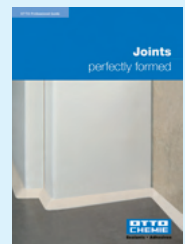


Firm and rigid back-up foam rod with a good clamping effect for indoors – not suitable for wet cells



### **Useful additional information**

You can get practical information about making the perfect joint in our OTTO professional guide “Joints perfectly formed”.





# Stress of the joints after installation

Stress of the joint after installation is decisive both for the joint geometry as well as for choosing the sealant to be installed. The joint and sealant must be able to withstand stresses. A distinction is made between:

## Mechanical stress



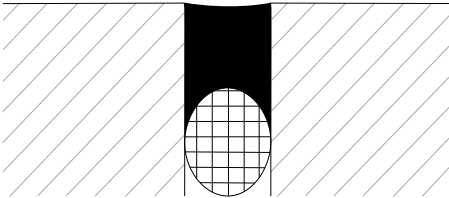
## Chemical stress



## Mechanical stresses – permanent traffic load of the installed joint

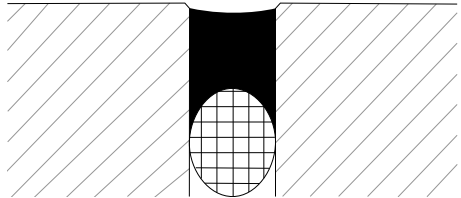
A distinction is made here between:

### Predominantly walked on joints



The flush introduction of the sealant creates a uniform surface that reduces the risk of tripping.

### Predominantly driven-on joints



Driven-on floor joints should be slightly chamfered or provided with edge protection profiles to protect the edges of the concrete and screed. By setting the insertion of the joint back, the joint is less stressed when driven on, thereby reducing the risk of damage from the tyres.



### Driven-on joints

In warehouses and production halls, on courtyard areas and parking decks, in underground car parks, car washes or workshops, wherever the ground is driven on with forklifts or lorries, the joints are exposed to particularly high stresses.

The joints between the components must have a minimum width of 10 mm to be able to absorb the movements. The sealant thickness should be limited to a maximum of 15 mm by the backfilling of the joints. Walked-on and driven-on joints over 15 mm in width should be covered with protective plates or T-profiles, thereby protecting against the mechanical stress of the sealant.

### Chemical stresses on floors and walls

In areas with a high hygienic stress, such as in dairies, butcher shops, large kitchens or beverage and food factories, the entire area is cleaned with highly-effective cleaning chemicals and high-pressure cleaners. Not only the flooring and wall coverings, but also the grouting need to withstand these stresses. The sealant must be very chemically resistant and suitable for mechanical cleaning with high pressure water. When working with high pressure cleaners, we recommend maintaining at least 50 cm distance between the spray nozzle and the sealant. Joints with a high chemical stress are maintenance joints as per DIN 52460.

The chemical stress and the primer table of the different products can be found in the respective technical data sheet.

You can find the matching OTTO products for highly-stressed floor joints on page 12.



#### The OTTO processor tip

Chemically stressed joints should be designed as “walked-on floor joints”, since stressing liquids cannot collect in the joint groove.

# Joints on plastic and design floor coverings made of rubber, linoleum, vinyl and PVC



Whether in private living spaces or in buildings with a commercial purpose, plastic and design floor coverings made of rubber, linoleum, vinyl and PVC are increasingly being used. These floorings are available in plenty of different colours and shapes. There are limitless possibilities here.

The right sealant also needs to be chosen for the floor joint. With our OTTO products, we have the right sealant for every plastic and design floor covering. No matter whether you need a sealant in matte colours, in special colours or for certain requirements, OTTO has the right product for your application.



## **The OTTO processor tip**

When grouting linoleum flooring, the smoothing tool should only be wet with a little smoothing agent or tooled off dry. Residue of the smoothing agent must be removed from the covering before it dries to avoid stains from forming.



### OTTOSEAL® S51

The premium plastic floor silicone



- ✓ **B1 – hardly inflammable**
- ✓ Special fire protection requirements
- ✓ PVC, rubber, vinyl and linoleum
- ✓ Durable and robust joint



High colour variety



### OTTOSEAL® S125

The low-odour floor and sanitary silicone

- ✓ **Low odour**
- ✓ Resistant to mould
- ✓ Durable joint



Also in matte colours

Also suitable for use in the bathroom sector

Tested for use in the food-related sector



### OTTOSEAL® M390

The floor sealant

- ✓ **Highly impact resistant**
- ✓ Extremely elastic
- ✓ Good resistance to influence of chemicals
- ✓ Cures practically without shrinkage



Silicone-free

Tested for use in the food-related sector

# Joints on parquet, laminate, wooden and cork floors



Wood and laminate floors are very popular alternatives to carpets or stone and tile floors, especially in the private sector. The expansion and connection joints, for example between the floor and baseboards and thresholds, need to be sealed after installation to protect the floor from water ingress, which may occur during cleaning. Our matching products are ready to use. They can be grinded, overcoated and painted after curing.

**Attention:** When installing the flooring as floating flooring, ensure that the expansion joints remain free. In any case, observe the manufacturer's installation instructions.



## Useful additional information

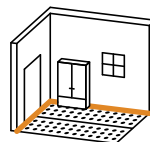
A joint can only be fully stressed once it has fully cured. There are colour changes with acrylates during curing/drying. The final colour is achieved with OTTOSEAL® A221 Parkett once fully cured. You can find information about the curing of OTTO sealants in the respective technical data sheets.



### OTTOSEAL® M 390

The floor sealant

- ✓ **Highly impact resistant**
- ✓ **Extremely elastic**
- ✓ **Good resistance to influence of chemicals**
- ✓ **Cures practically without shrinkage**



Silicone-free

Tested for use in the food-related sector



### OTTOSEAL® A 221 Parkett

The parquet joint sealant

- ✓ **Can be painted over**
- ✓ **Silicone-free**
- ✓ **Can be sanded/polished**



Available in the matching wood shades



### The OTTO processor tip

OTTOSEAL® A 221 Parkett should be removed within 5 minutes. For oiled surfaces and parquet wood containing oil, there can be adhesion and compatibility problems with the joint compound. We ask you to test it out first here.

# Joints in extremely stressed areas



Joints in the floor are often exposed to big stresses. These can not only be mechanical, but also chemical stresses. Our matching products impress here, since despite their high elasticity and good workability, they form a robust and highly stressable surface in the cured state.

In the industrial sector, the sealants meet the highest requirements. In addition, they are ideal for applications in food-related areas due to the ISEGA clearance certificate.



## The OTTO processor tip

To ensure easier application and a perfect joint, we recommend using OTTO smoothing agent or OTTO concentrated smoothing agent.



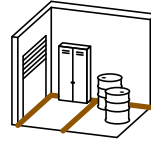


### OTTOSEAL® S34

The floor silicone

#### SPEZIAL

- ✓ **Extremely impact resistant**
- ✓ Excellent mechanical resilience
- ✓ Very good resistance to influence of chemicals
- ✓ High temperature resistance



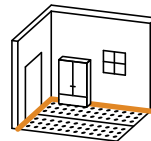
Tested for use in the food-related sector



### OTTOSEAL® M390

The floor sealant

- ✓ **Highly impact resistant**
- ✓ Extremely elastic
- ✓ Good resistance to influence of chemicals
- ✓ Cures practically without shrinkage



Silicone-free

Tested for use in the food-related sector



### The OTTO processor tip

Particularly hygienic requirements play an important role, for example in dairies, butcher shops or large kitchens. Our two sealants OTTOSEAL® S34 and OTTOSEAL® M390 are perfect for this. You can find the chemical resistances of the products in the respective technical data sheet.



# Joints with special fire protection requirements



Linoleum, PVC and rubber coatings are often used in the public sector. In addition to the good cleaning properties, the costs are also a decision-making criterion compared to stone floors and not least the good colour variety is a reason to choose such coverings. With OTTOSEAL® S51, we offer a silicone in the highest contractor, which meets the requirements for fire protection tested according to DIN 4102-B1 – “hardly inflammable”.



## The OTTO processor tip

When grouting linoleum flooring, the smoothing tool should only be wet with a little smoothing agent or tooled off dry. Residue of the smoothing agent must be removed from the covering before it dries to avoid stains from forming.



## OTTOSEAL® S51

The premium plastic floor silicone

★★★★★  
**PREMIUM**

- ✓ **B1 – hardly inflammable**
- ✓ Special fire protection requirements
- ✓ PVC, rubber, vinyl and linoleum
- ✓ Durable and robust joint



High colour variety



### Useful additional information

Ensure good ventilation while OTTOSEAL® S51 is being worked and curing. OTTOSEAL® S51 is odourless after fully cured. Amin cross-linking silicone sealants may cause yellowing of certain alkyd paints and various plastics or similar - therefore we recommend carrying out trials before use.

# Joints with substrates that are difficult to adhere to



A sealant that is used on, for example, tar, asphalt or cast asphalt screed, must face specific requirements. Grouting on such difficult substrates requires all parameters to be clarified (silicone adhesion, compatibility, discolouration). We therefore ask you to get in touch with our technical department when facing such a problem in order to clarify the conditions and feasibility.



## Contact with the OTTO technical department

We look forward to receiving your order and will be there for you personally.

Tel.: +49 8684 908-4300 | Fax: +49 8684 908-1830 | [tae@otto-chemie.com](mailto:tae@otto-chemie.com)

Monday to Thursday: 8:00 am - 4:00 pm | Friday: 8:00 am - 2:00 pm



### OTTOSEAL® S54

The fire protection silicone B1

#### SPEZIAL

- ✓ B1 – hardly inflammable
- ✓ Extremely elastic
- ✓ Very good weather and UV resistance
- ✓ Adherent to difficult surfaces



#### The OTTO processor tip

For grouting cast asphalt screed, we recommend the OTTOSEAL® S54 combined with a suitable primer after consultation with our technical department.

# Additional products

Our flooring product range does not just consist of our 5 floor sealants. We recommend special adhesives, additional products as well as processing devices to you here, which perfectly supplement the product range.



## Adhesives for baseboards

- ✓ **OTTOCOLL® TopFix**  
The fixing adhesive
- ✓ **OTTOCOLL® M550 HiTack**  
The hybrid adhesive with extremely high initial adhesion
- ✓ **OTTOCOLL® M560**  
The universal premium hybrid adhesive with very high initial adhesion

## Adhesives for walls

- ✓ **OTTOCOLL® M595**  
The hybrid-adhesive for full-surface bonding
- ✓ **OTTOCOLL® S495**  
The panel adhesive

## Primers & cleaners

- ✓ **OTTO Primer 1105**  
The universal primer for absorbent substrates
- ✓ **OTTO Primer 1227**  
The plastic primer
- ✓ **OTTO Cleaner T**  
The standard cleaner



## Guns

- ✓ OTTO hand press gun H 17
- ✓ OTTO hand press gun H 27
- ✓ OTTO hand press gun H 37



## Smoothing agent

Smoothing of sealant surfaces including silicone, polyurethane and MS hybrid polymer sealants

- ✓ OTTO Smoothing agent
- ✓ OTTO Concentrated smoothing agent

## Processing tool

Smoothing tool made from special plastic for the professional formation of joints in the area of floor, sanitary, tile and natural stone

- ✓ OTTO Fugenfux  
set of 4 for bathroom and floor joints
- ✓ OTTO Fugenfux Multitool

## Back-up foam rods

- ✓ OTTOCORD PE-B2  
The closed-cell  
PE back-up foam rod
- ✓ OTTOCORD PUR-H-B3  
The open-cell  
PUR back-up foam rod soft
- ✓ OTTOCORD PUR-HS-B3  
The open-cell  
PUR back-up foam rod firm



# As versatile as the issues involved: Advice from OTTO



Did you know? The experts from the Product Development and Application Consulting departments at OTTO have been combined to provide quick and sound solutions to your questions. This expertise from OTTO is available to you in many forms, in addition to personal telephone discussions.



## We are happy to advise you!

Do you have a question about our products or how to use them correctly that you could not find the right answer to on our website? Then get in touch with our technical department! Our highly qualified application consultants will be happy to receive your questions and will certainly find the right solution together with you. Because we have the right answer for (almost) everything.

Tel.: +49 8684 908-4300 | Fax: +49 8684 908-1830 | [tae@otto-chemie.com](mailto:tae@otto-chemie.com)  
Monday to Thursday: 8:00 am - 4:00 pm | Friday: 8:00 am - 2:00 pm







### Processor colour tables

Our colour tables are an established communication aid prized by retail for consultation and sales support. Manually provided with original colour samples, the colour tables offer a solid basis for deciding on the right colour. The specially developed processor colour tables are very practical, which can be folded to be held next to the corresponding joint for direct colour comparison.

### OTTO App

Whether iOS or Android: With the OTTO app for smart-phones and tablet PCs you always have the solution to all application issues at your side. Product search, consumption calculator, colour recommendation, order, contact – and if you wish to be informed in good time about the latest news, simply activate push notifications.

**Download now via the App Store or Google Play.**



### Product Catalogue

The OTTO catalogue provides information on the properties and areas of application of all products from our Standard Construction range. You can view the catalogue online in your browser, download it in PDF format, or order a free paper copy.




**[www.otto-chemie.com/en/flip-catalogue](http://www.otto-chemie.com/en/flip-catalogue)**

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For information relating to certification marks, please see [www.otto-chemie.com](http://www.otto-chemie.com) under the heading "Information on Certification Marks". The requirements and test criteria of the DGNB and LEED can be found on [www.dgnb.de](http://www.dgnb.de) and [www.german-gba.org](http://www.german-gba.org). Please note that these companies do not evaluate our individual products, but the sustainability as a whole of each complete building project.

The information in the present document corresponds to the status quo on going to print, (refer to the index on the outside back cover). With a new edition this edition becomes invalid. Due to the many possible influences during and after application, the customer always has to carry out trials first. Please observe the respective technical data sheet! This information is available on the Internet at [www.otto-chemie.com](http://www.otto-chemie.com). Errors and typographical errors are excepted.

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@OTTOCHEMIE

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SEALING & BONDING