Loading instructions

for save loading

of vehicles

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1. Preface:

The loading instructions are the basis for a legally compliant realisation of the current applied rules for load securing of the company CREATON AG.

The correct appliance of the loading safety according to VDI 2700ff (technical rules) and DIN EN 12195 ff concerning the execution of loading safety measures eliminates visible risks of accidents due to missing or inadequate securing means.

Besides economical damages, especially the risks of personal injury have to be avoided stringently. A threat of persons due to inadequate executed load securing measures for the driver and the uninvolved traffic participants will occur especially during the transport of goods because of the appearing inertial forces.

Basically, everybody who is entrusted with the loading of goods is responsible and underwriting for an appropriate loading safety. Thus, the shipper, the driver, the vehicle owner, the sender and the carrier are responsible to take loading actions.

Vehicles and their superstructures as well as load securing means and lashing strap methods have to correspond to the current laws, standards and rules. Target of those instructions is to avoid the threat of other traffic participants and to raise the transport quality.

Moreover, there will be a specific reference to the ordinance to the rules of load securing methods. The appropriate loading and securing the shipment requires the observation of the accepted rules of the forwarding companies and haulier. Those rules are particularly DIN-

and EN-standards as well as VDI-guidelines as the present VDI-guideline 2700 “load securing for road vehicles”.

The loading instruction is no individual vehicle approval for one vehicle type and shipment.

2. Area of application:

The loading instruction is valid for the CREATON AG and following plants

- Autenried
- Dorfen
- Höngeda
- Guttau
- Großengottern
- Roggden
- Weroth
- Malsch
- Wertingen

in combination with the present company instruction and refers to everybody who is concerned with load securing.

Furthermore, the instructions are valid for forwarding companies and companies (carrier), which are transporting goods for the company CREATON AG based on a contract.

The crew has been instructed according to the VDI guidelines. Correspondingly, this is valid for self-collectors.

3. Product description:

The different roof, cladding and floor tiles and accessories are packed on euro / one-way pallets and horizontally as well as vertically fixed with a plastic strap.

Roof, cladding and floor tiles / accessories that are not packed on full euro / one-way pallets are completely shrink-wrapped.

Depending on the type of tile, one pallet can weight up to 1,100 kgs.

Plastic strap:

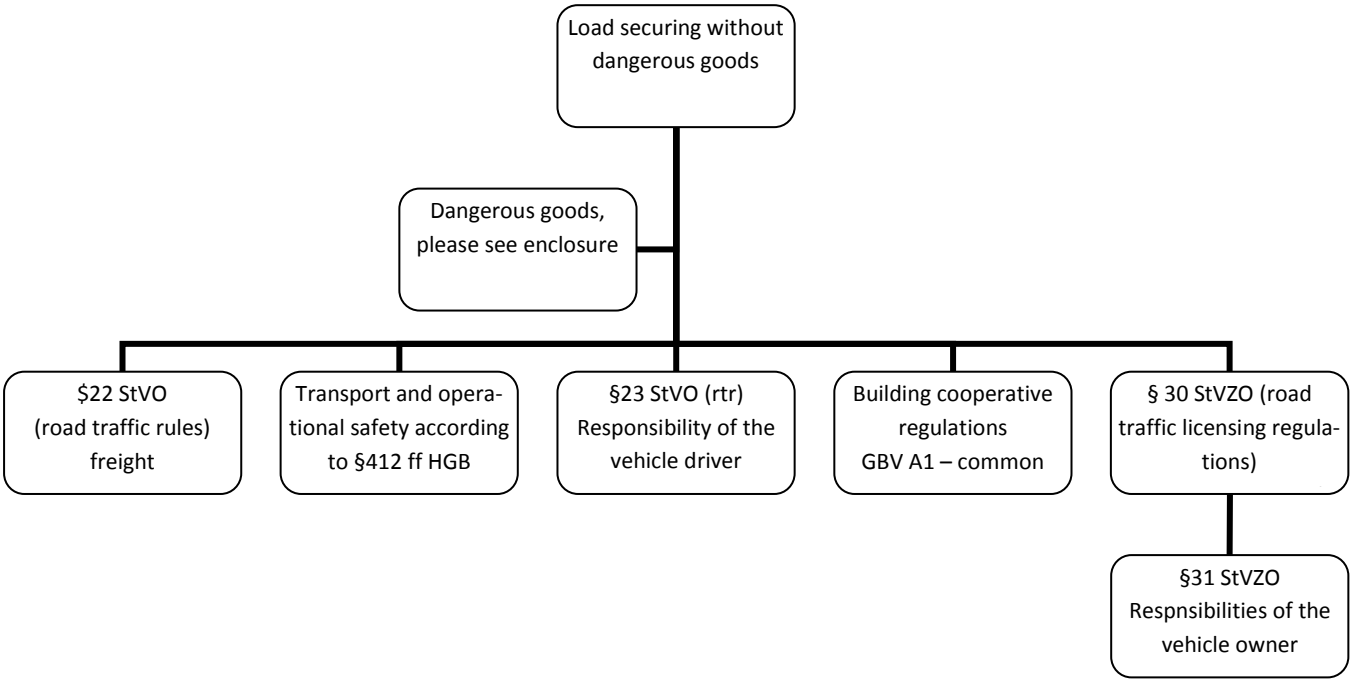
For load securing reasons, there will be used a horizontal and vertical plastic strap with according specifications.

4.0 Basics for load securing:

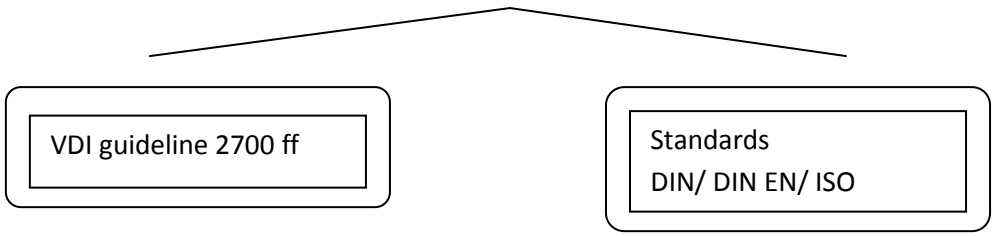
All parts of a shipment have to be loaded and saved on the vehicle that the position to each other, to the vehicle or to the bearing pressure point will not be changed during the whole transport process.

According to § 412 section 1 HGB, the transport and operational save loading can be assigned to the haulier by contract. The valid and accepted technical rules for load securing have to be considered. (For self-collectors, there will be special regulations. Please see enclosed form.) Those rules even are valid if the haulier will be supported in loading through CREATON. The haulier is obligated to provide roadworthy vehicles with clean, well-swept load floors. Moreover, the haulier is responsible to provide the necessary load securing means (tension belt, edge protectors etc.) for the transport and operational save loading. CREATON will refuse to load vehicles that do not correspond to those standards. (Please see the link “load securing”.)

The tour just can be transported with vehicles or truck combination of more than 13.5 loading meter capacity. Articulated vehicles need to have a minimum capacity of 7 loading meters.

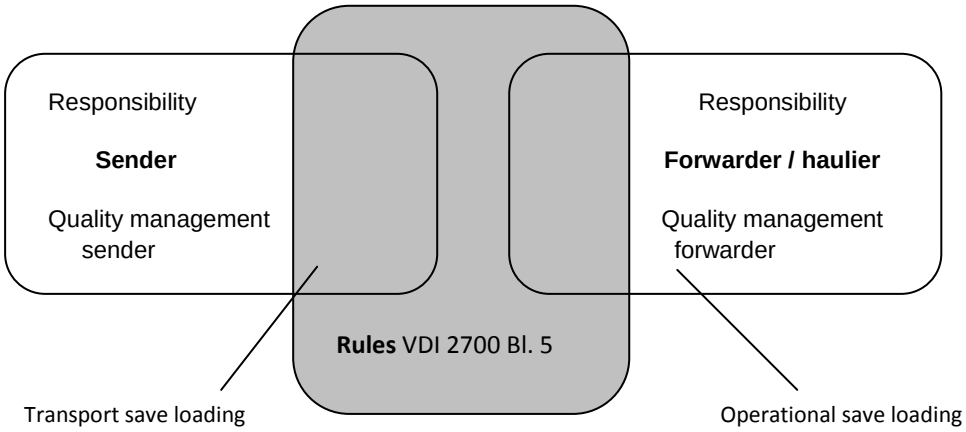


In combination with the accepted technical rules



5.0 Quality assurance:

To assure the quality, it is necessary that the sender (producer and / or owner) of the shipment and the forwarding company / haulier basically are realising the transport planning together.



Picture 1: Example for areas of responsibility and rules

A loading will be **operational save**, if the stowage or securing of the shipment on the vehicle neither affects the road safety of the vehicle according to the StVO nor the working operational safety during loading and unloading according to the accident prevention regulations (protection for undesired movements of the shipment).

A loading will be **transport save**, if the shipment neither will damaged due to transport nor due to loading and unloading (protection for damage of the goods).

Planning the transport should be effected on basis of the VDI guidelines 2700: “load securing for road vehicles, sheet 5 – quality management system”.

The knowledge about the dimensions, core area as well as the conditions for transport the shipment is the basic for a save transport.

For unstable loading units (VDI 2700, sheet 2, section 3.1) and goods with an eccentric core area, the core area needs to be known. If the core area position is not obvious, it has to be calculated and the loading unit needs to be signed accordingly.

6.0 Vehicle specifications

Depending on the loading goods (please check page 4), there needs to be used a suitable vehicle with the corresponding superstructures and load securing facilities where required. Following vehicles will be allowed for loading roof, cladding and floor tiles and accessories:

- Motor vehicle
- Motor vehicle and trailer
- Trailer truck

The vehicle superstructures (canvas cover and open trucks with platform gates) will be distinguished between vehicles with and without truck deck crane. The platform gates need to have a min. height of 800 mm. A lower height of the platform gates will be accepted if the height of the platform gates will exceed the height of the goods.

The truck deck crane can not be used for load securing.

A truck with deck crane should carry at least 8 empty pallets (to fill loading gaps).

Vehicle superstructures according to DIN EN 12642 just partly can be used for load securing.

	Constructed before 04/2002 or not standardised	DIN EN 12642	
		Code L	Code XL
Curtain sider	X	X	X
Hamburg folding top	X	X	X
Platform gate sider			X
Box body	X	X	X
open platform	X		
Tailer up to 3,5t pmw	X		

6.1 Common specifications

- Load capacity of the platform gate and concentrated load according to manufacturer´s instructions
- Lashing points according to the requirements of DIN EN 12640
- Structural strenghts (front and side walls) according to DIN EN 12642
- Veheciles with beveled front wall sometimes can not be loaded full-width up to the front wall. In that case, the empty space needs to be filled with pallets or square timber. Unless possible, the shipment needs to be saved accordingly in driving direction with other measures.
- The vehicles needs to be proofed at least once a year according to BGV D 29 and to manufacturer´s instructions with a proof of competence.
- certificate structural strenght for form-fit load securing (XL-Code)
- The vehicle manufacturer needs to proof the suitability of the sturctural strenghts for form-fit load securing. The commissioning of a haulier needs to be considered according to the concnetrated load/s related to the expected forces due to transport processes.

	DIN EN 12642 Code L	**DIN EN 12642 Code XL** (mit Zertifikat)	**DCE 9.5**
Front wall	**40% of the payload** as area load of the total height. Control with max. **5.000 daN**	**50 % of the payload** as area load in 3/4 of the superstructural height.	13.500 daN
Side wall	**30% of the payload** as area load of the total height.	**40 % of the payload** as area load in 3/4 of the superstructural height.	10.800 daN
Back wall	**25% of the payload** as area load of the total height. Control with **max. 3.100 daN**	**30 % of the payload** as area load in 3/4 of the superstructural height.	8.100 daN

Example:

Excerp of a certificate (XL- Code) concerning the stability of the vehicle superstructure. No.: DN 0704166Z1 company Kögel

Confirmation of adequate load securing according to §§ 22 and 23 StVO (road traffic rules) and § 30 StVZO (road traffic licensing regulations) combined with the regulation VDI 2700 and DCE RL 9.5.

For Kögel trailers SNC024P, SNCC24P, MAXXplus, M-MAXXplus with certified truck type mounting according to prEN12642-XL-certificate TNS LS 0704166Z1.

3.1 In general

The regulations for load securing are complied on following conditions:
The shipment lies laminary at front, side and back wall. The maximum distances to the cargo area walls and loading gaps are.30mm per running loading meter. Within the cargo area with a width of 2.550, the total amount of all distances and loading gaps can be max. 150 mm.
The cargo can be loaded up to the full height of the truck wall; the minimum loading height above the loading platform has to be 800mm.
The coefficient of sliding friction between the cargo area and the cargo itself respectively between loading parts is at least μ = 0.30.
All moveable parts (e. g. stakes, battens, canvas cover sealings, doors, sliding roof) are to use according to the regulations and to save while every transport.
If the shipment does not touch the back wall, further load securing will be necessary according to VDI 2700. If the above mentioned conditions are observed, load securing according to VDI 2700 will be fulfilled. Securing will be guaranteed through the vehicle body (form-fitted securing) and the friction force resulting from the loading weight with a coefficient of sliding friction μ Š 0.30. Further securing (lashing, intermediate stakes, coefficient of friction raising underlays etc.) is not necessary. The requirements according to EN 12195 part 1-2004 correspond to the VCI 2700 und thus kept as well. On above mentioned conditions, the requirements of load securing according to ADR are observed too.

6.2 Load spreading (VDI 2700 sheet 4)

The shipment has to be stowed that way that the core area of the entire shipment will be above the middle sheer, if possible. This core area has to be kept as low as possible:

- The loading of the vehicle has to be effected within the permitted total weight and the permitted axle weight.
- The load spreading considers in a curve:
  1. permitted front axle weight
  2. permitted back axle weight
  3. maximum payload
  4. minimum axle weight for a save maneuverability of a vehicle
  5. minimum driving axle load for adequate traction

The load spreading plan should be carried for transport and operational save loading. The haulier can ask to get the current load spreading plans from the vehicle or superstructural manufacturer. The observation of the load spreading plan is incumbent on the vehicle driver.

7.0 Means of securing

By choosing and using lashing means, the necessary lashing force as well as the application and the kind of the goods to save have to be considered. Due to balance reasons of freestanding shipments, there need to be used at least two lashing means to lash down or two pairs of lashing means to lash diagonally, if no other actions will be implemented that prevent perverting or slipping the shipment through form fit e.g.. By using further fitting parts and lashing equipment to lash you have to care that they will be compatible with the lashing means.

Basic equipment :

Motor vehicle and trailer:

For laod securing you have to carry at least 8 lashing means (tension belts) per vehicle according to DIN EN 12195-2 and 2 edge protections with the minimum dimensions of 600 mm length and a recommended side length of 150 mm x 150 mm.

Truck trailer:

There are required at least 16 lashing means (tension belts) according to DIN EN 12195-2 and 2 edge protections **(plastic material)** per belt with the minimum dimensions of 600 mm length and recommended side length of 150 mm x 150 mm.

Edge protection:

The edge protection has tree tasks:

1. protection of the goods by possibly laminar force application
2. protection of the lashing equipment against sharp edges
3. Ensuring a possibly constant power transmission when lashing n

A suitable edge protection made of plastic (minimum length 600 mm and side length 150 mm) are to set by the haulier.

Every plant will have available corner protectors made of cardboard **for singular use** as well as reusable corner protectors made of plastic which can be handed out to the driver for reimbursement of expenses, if necessary.

Corner protectors made of cardboard are just foreseen for singular use and basically to exchange. It is not allowed to use damaged corner protections.

On top of the long edge protections (cardboard) you can fix the narrow standard edge protections made of plastic.

Alternatively, you can use turned euro- or one-way pallets. However, you have to observe that the admissible total weight of the truck / truck and trailer will not be exceeded because of the additional empty pallets (up to 24 kgs each). Then, the usage of edge protectors will be indispensable to spread out the force constantly when lashing. Moreover, the lashing equipment could be damaged through the sharp edges. To guarantee adequate protection with a pallet on top of the goods, the simple (narrow) corner protectors absolutely fulfill the requirements.

Special edge protection profiles made of metal can be used as additive for securing by head lashing.

Fire hose or similar means can <u>not</u> be used as edge protections as their interior rubber film pretends a constant allocation of the force when you lash down.

8.0 Product information

The dimensions of the shipment and the core area are to determine.

You will find further product details on enclosure 1.

9.0 Form-fit load securing

According to VDI 2700 2.3 „Form-fit securing“, shoring the shipment at the front wall or platform wagon is known as form-fit load securing. Securing can be effected through direct shoring, spreading the shipment at the front wall.

The load capacity of the vehicle superstructure will be described in the standard DIN EN 12642.

Further load capacity of lateral insertion boards:**

Manufacturer	Material	Size	pitch 3.100 mm 3 pairs of flatcars	pitch 2.400 mm 4 pairs of flatcars
	wood	120 x 25 mm	70 daN	88 daN
	aluminium	100 x 25 mm	186 daN	242 daN
		150 x 25 mm	257 daN	324 daN
Krone		25 x 25 x 120-2 mm	235 daN	304 daN
Schmitz		25 x 25 x 120-2 mm	235 daN	304 daN
Kögel		25 x 25 x 120-2,5 mm	302 daN	390 daN
	steel, zinc coated	140 x 35 mm	565 daN	733 daN
SpanSet, TruXafe		175 x 36 mm	809 daN	1.050 daN
1g instertion board		260 x 35 mm	925 daN	1.202 daN

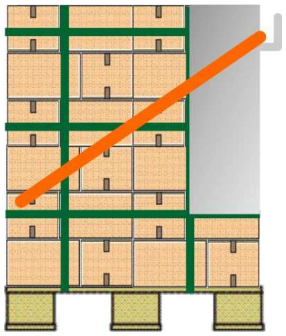
** Source: Herr Dipl.-Ing. C Franz.

Form-fit load securing by head lashing

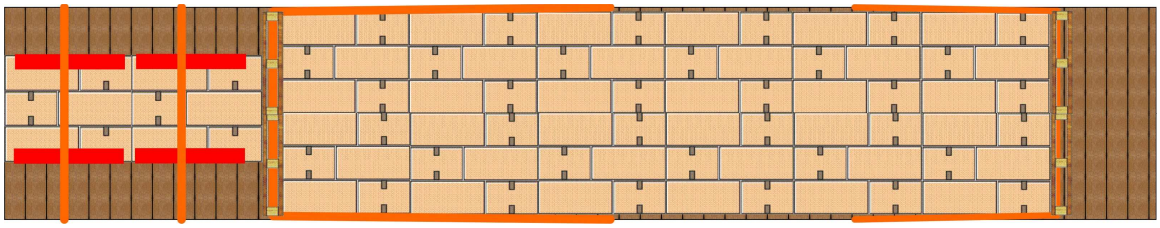
There is a disproportional high number of lashing equipment needed to save a loading solely by lashing. Alternatively, there had to be used lashing equipment with a remarkably higher pretensioning force (S_{TF}). However, this inevitably would cause the damage of the loaded shipment.

Indeed, a considerable share of the necessary securing force can be reached by form-fit load securing. Depending on the admissible tensile force (LC) and the lashing point stability, the head lash can hold up to 5.000 daN. The pallets are used for laminar force application into the shipment and for fixing the lashing equipment.

Instead of pallets, you also can use some corner angles. Please care, that the corner angles are long enough to guarantee laminar force application.



If the first two rows of pallets have to be loaded separately due to load spreading reasons, the first row with double loaded pallet needs to be saved by head lashing as well.



According to VDI 2700 sheet 3.2, following utilities can be used:

- Separation net
- Air pillows
- Empty pallets
- Nets and canvas covers

By using the utilities, the weight and load have to be considered accordingly.

9.1 Force-fit load securing (lashing down):

Force-fit lashing down just can be executed provided that there is a high frictional force (e. g. through anti friction mats). Because of the upper lashing of the freight, the loading will be pressed on the loading platform.

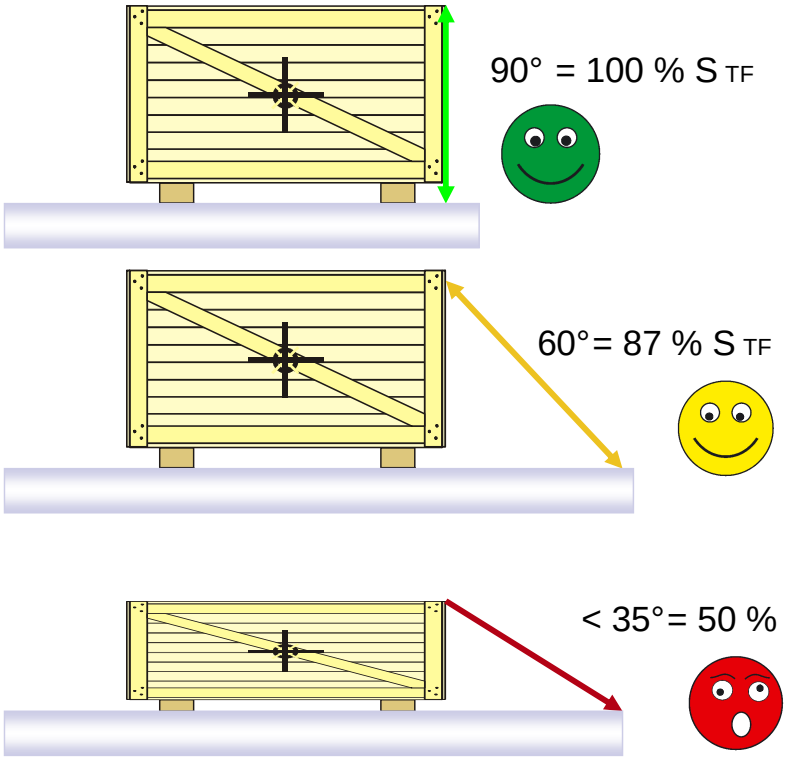
Through the raised pretensioning force (S_{TF}/F_{PRE}), the frictional force between the freight and the loading platform will be increased. Lashing down as slip protection is a force-fit process. Form-fit has the effect of a tilt protection.

The pretensioning force created by the tensioning element will not be distributed evenly across the freight, as there are occurring frictional losses at the deflection. Concerning calculations for load securing, this will be considered with the k-factor.

The resulting lashing forces (VDI 2700, 1.3 and DIN EN 12195-1) have to be held by the variety of appropriate methods of load securing and in connection with the lashing points of the vehicle.

The real usable securing force, however, depends from the friction coefficient (μ_D). For securing, merely the percentage of the friction ($F_S * \mu_D$) will be relevant.

Thus, a preferably high friction coefficient is an important requirement referring load securing.


90° = 100 % S TF
60°= 87 % S TF
< 35°= 50 % S TF

10.0 Maximum force of gravity of the shipment:

During driving, there are arising forces of gravity affecting the shipment lengthwise respectively crosswise to the driving direction or vertically – e.g. forces through braking the vehicle respectively driving bends or of the loading floor unevenesses of the loading platform. Besides the constant weight G, accelerating forces, whose extent is depending on the product, are affecting the shipment in consideration of possible driving condition.

Please see below how weight and acceleration affect:

Tabelle 2 — Beschleunigungsbeiwerte c_x, c_y und c_z beim Straßentransport

Sicherung in	Beschleunigungsbeiwerte				
	c_x, längs		c_y, quer		c_z, vertikal nach unten
	vorwärts	rückwärts	nur Rutschen	Kippen	
Längsrichtung	0,8 [a]	0,5	—	—	1,0
Querrichtung	—	—	0,5	0,5 + 0,2 [b]	1,0

[a] anstelle von IMO = 1 in Verbindung mit μ_s

[b] + 0,2 nur für instabile Ladungen

Source: DIN EN 12195-1 Edition 2004

On the roads, the legislative authority demands load securing, that holds:

- 80% of the shipment´s weight at the front wall (0,8g),
- 50% of the shipment´s weight backwards (0,5g) and
- 50% (70% if tilting danger) sideward (0,5g / 0,7g)

Those values have been reached during many road tests with vehicles having the best available technology. Under test conditions, they partly even have been exceeded.

Usually, securing the shipment will be effected through a combination of various securing methods consisting of force- and form-fit load securing. Totally, the raised securing force always has to be higher or equal to the according force of gravity of the shipment.

Symbols, units and terms

symbol	meaning	unit remark
F	force	N, daN, kN, ... (10 N = 1 daN)
m	weight	g, kg, t A cargo of 2.5t (2500kgs) has a force of appx. 2500 daN
g	gravitation acceleration	g= 9.81m/s² (~ 10 m/s²)
a	acceleration	m/s²
c (EN 12195-1) (VDI 2700)	coefficient of accelerati-on	0.8 direction of motion, 0.5 across and aback (0.7 in danger of tilting)
v	speed	m/s, km/h, ...
t	time	Second, s
r	curve radius	m, km, ...
F_G	force (of the shipment)	N, daN (1 daN = appx. 1 kg) F_G=m x g (g = 9,81m/s^2)
F_T	inertial force (of the shipment)	daN
F_R	friction force	daN F_R= μ x F_G
μ_D - coefficient of slid-ing friction	coefficient	without unit (DIN 12195-1)
μ_s – coefficient of adhesion	coefficient	without unit (DIN 12195-1)
F_s	securing force	$F_S = F_G - F_R$
F_v	pretensioning force	daN – pretensioning force in a belt. For Fv you either have to insert S_{TF} (see belt label) or a detectable real value of the pretensioning force through measuring.
Wkin	kinetic energy	Joule, J energy of motion

10.2 Coefficient of sliding friction:

Coefficient of sliding friction according to VDI 2700 sheet 2 (dated: Nov. 2002).

Zustand	trocken	nass	fettig
Material-Paarung	Gleitreibbeiwerte „μD“		
Holz/Holz	0,20 - 0,50	0,20 - 0,25	0,05 - 0,15
Metall/Holz	0,20 - 0,50	0,20 - 0,25	0,02 - 0,10
Metall/Metall	0,10 - 0,25	0,10 - 0,20	0,01 - 0,10
Beton/Holz	0,30 - 0,60	0,30 - 0,50	0,10 - 0,20
ARM	0,6	kleiner als 0,6	kleiner als 0,2
Je nach Flächenpressung kann sich der Reibbeiwert ändern			

As there are no specific analysis concerning the coefficient of sliding friction μ_D relating to various materials the shipment can consist of and the different conditions of the loading area, the stated coefficients of sliding friction are based on common references and literature.

The loading platform has to be well-swept, free of oil, grease, frost, ice and snow.

In case of doubt, please calculate with the lowest coefficient of sliding friction μ_D!

In case of other material combinations and environmental influences as dirt or freezing, the coefficients of sliding friction need to be estimated or determined after special experiments..

Please find attached the regulations according to DIN EN 12195-1 showing further coefficients of sliding friction.

You will find all common data in the calculation programme VS – Lasi-Control.

Unusable slip resistant mats:

Slip resistant mats are to refuse for further usage if one of the following criteria is given:

- Constant deformation
- Pressure mark
- Cracks
- Abrasion of the surface
- Holes in the material
- Swollen areas
- Damages due to contact with aggressive mateials
- Brittleness
- Functional affecting dirt

Slip resistant mats are not allowed to be used as edge protection.


unusable slip resistant mats


Too high loading pressure

11.0 Product specific load securing

For the correct calculation of load securing, the consignor has to state the:

- weight of the shipment
- kind of load securing

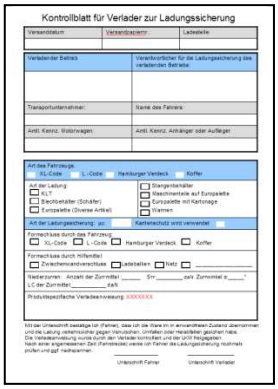
You will find a detailed description of load securing in the product specific attachment.

Further descriptions of load securing as per attachment 1.

12.0 Organisation and steps of load securing

1. Order placing with the internet based transport contract system

   Attached, you will find the loading instructions roof – cladding – and floor tiles:


Kontrollblatt für Verlader zur Ladungssicherung

- Providing a appropriate vehicle
- Lashing points
- Edge protection as demanded
- Lashing equipment as demanded
- Slip resistant - mats as demanded

2. Booking of a loading time through TISLOT

3. Driver´s registration at the respective responsible CREATON reception/dispatch office

4. Call of the driver for loading effected by CREATON

5. Opening of the vehicle and preparing of the lashing equipment by the truck driver (maybe already done between point 2 and 3)

6. The CREATON staff will instruct the driver concerning load securing (load securing can be effection within the plant during non-busy periods, during peak hours load securing has to be effected outside of the loading area)

7. The driver will receive the shipping documents just if the loading has been secured according to the legal requirements

CREATON refused to load vehicles if the load securing requirements of the vehicles and load securing devices do not correspond to the requirements of load securing instructions.

13.0 Basics for load securing of roof, cladding and floor tiles

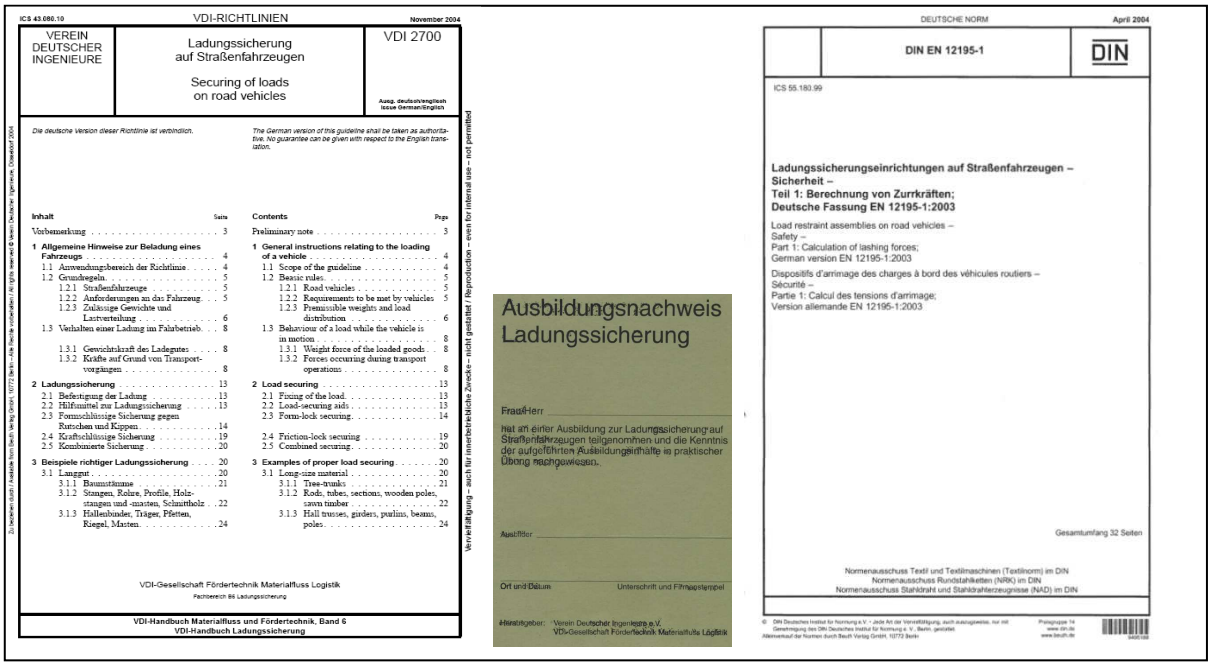
1. Wooden euro/one-way pallets of standard and accessory tiles have to be in good condition.
2. The shipment will be loaded on the truck (safe to operate) by the forklift operation according to the agreement and instructions of the truck driver while his presence as well as according to the load distribution plan. The loading area of the truck needs to be well-swept and free of oil, greases, frost and snow.
3. Slip resistant mats have to be laid underneath (coefficient of friction of μ_D= max. 0.6) if the automotive body cannot hold securing forces.
4. The shipment has to be loaded that the centre of the total shipment preferably will be above the lengthwise centre line of the vehicle. Dieser Schwerpunkt ist so niedrig wie möglich zu halten (VDI 2700 1.2.3). The lashing points should not be blocked by the shipment.
5. Form-fit loading (VDI 2700 2.3) needs to be guaranteed at the front and side wall as well as the back side. Loading gaps are allowed according to the manufacturer´s certificate.
6. Further loading gaps (VDI 2700 2.3) have to be secured accordingly.
7. If there is not possibility to load form-fitted, the vehicle driver has to use more lashing equipment for appropriate securing of the shipment according to the legal regulations.
8. The accessories on second row have to be secured separately. If possible, it should be placed at the front wall.
9. The used lashing equipment needs to correspond to the regulations according to DIN EN 12195-2 and have to be replaced as soon as they are not in good condition anymore.

The loading personnel has to check the lashing equipment concerning „obvious defects".

10. Under following conditions, the lashing equipment is not usable anymore:
    - Lashing straps, if 10% of the strap´s fabric is worn out or damages of the materials are visible.
    - Belt straps, if there are obvious cracks, cuts, dentings and breakages of load-bearing fibres and stitchings, deformations due to insolation and warmth
    - End fittings and tensioning elements, if there are deformations, cracks, severe indication of abrasion and corrosion.
    - No label or not readable.
11. Edge protection:
    - length min. 600 mm
    - length of the edge appx. 150 mm x 150 mm (min.)
    - made of plastic or cardboard (cardboard for single use only).
12. Moreover, the edge protection can be replaced by turned euro or one-way pallets.
13. Lashing canvas and lashing nets can be used as well and replace the mentionned edge protections.
14. Basically, lone standing pallets are to secure with two lashing straps.
15. The lashing equipment should be fixed at the provided lashing point as far as possible. Lashing at the chassis and across the sideboard just should be executed in exceptional cases.
16. The truck has to be closed correctly.

14.0 Overview of applied standards

- VDI 2700 load securing for road vehicles 2004-11
- VDI 2700a training certificate load securing
- VDI 2700 sheet 2 load securing for road vehicles lashing forces 2002-11 / draft 2011-08
- VDI 2700 sheet 3.1 load securing for road vehicles instructions for use of lashing equipment 2004-08
- VDI 2700 sheet 4 load securing for road vehicles load distribution plan 2000-05
- VDI 2700 sheet 5 load securing for road vehicles quality management systems 2001-04
- *VDI 2700 sheet 6* load securing for road vehicles *combined loading of groupage*
- DIN EN 12195 - 1 calculation of lashing forces (04/2004)
- DIN EN 12195 - 2 lashing equipment made of man-made fibres
- DIN EN 12640 lashing points of commercial vehicles to forward goods
- DIN EN 12641 - 1 exchangeable containers – canvas covers
- DIN EN 12642 commercial vehicle type mounting – minimum requirements
- BGI 649 load securing for vehicles
- BGL guidebook „Securing and loading“
- GDV load securing guide



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VEREIN DEUTSCHER INGENIEURE

Ladungssicherung auf Straßenfahrzeugen

Securing of loads on road vehicles

VDI 2700

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Die deutsche Version dieser Richtlinie ist verbindlich.

The German version of this guideline shall be taken as authoritative. No guarantee can be given with respect to the English translation.

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Ausbildungsnachweis Ladungssicherung

Frau/Herr

hat an einer Ausbildung zur Ladungssicherung auf Straßenfahrzeugen teilgenommen und die Kenntnis der aufgeführten Ausbildungsinhalte in praktischer Übung nachgewiesen.

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Normenausschuss Textil und Textilmaschinen (Textilnorm) im DIN
Normenausschuss Rundstahlketten (NRK) im DIN
Normenausschuss Stahlkraft und Stahlkraftverzeugnisse (NAD) im DIN

15.0 Enclosure dangerous goods

Basis for transporting dangerous goods by truck are the regulations according to ADR (enclosure A and B of the European agreement dated 30th September 1957 concerning the international transport of dangerous goods by truck).
Not all materials are subject to the regulations ADR. For some dangerous materials, there are regulations concerning packaging, storage and handling, however, there are no asserted specifications concerning the transport by truck.
If the material has a four-digit UN-number, it basically is subject to the regulations according to ADR for road haulage.

There are following exceptions:

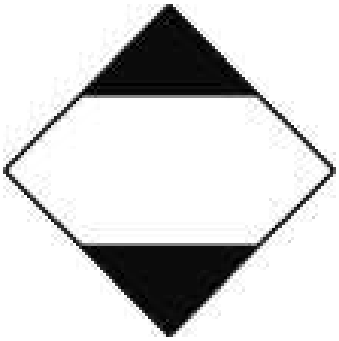
1. Some materials basically are excluded from the regulations according to ADR part 3.2 - register A – index of dangerous goods
   E.g.: Straw or hay (UN-number: 1327)

2. Exemption concerning the kind of shipping (excerpt)

   c) Transports effected by companies having their main business in carrying shipments to or from the construction site within the civil engineering sector or in connection with measuring, repair or maintenance work that do not exceed 450 liter per package and the maximum amount according to subsection 1.1.3.6.

3. Exemption concerning the shipped quantities (excerpt)

   This chapter contains the rules valid for transporting dangerous goods, packed in limited quantities, of spezial categories. The limit concerning the quantities shipped or the packaging that have to be kept for the inner package will be stated in column 7 a, register A, chapter 3.2, for every single material. Transport units and packages containing dangerous goods of limited quantities have to be marked with the below mentionned label.



4. Exemption concerning the shipped quantities per transport unit (subsection 1.1.3.6).

Dangerous goods of the classification 3 - 9 are divided into so-called packaging groups (PG). I.e.:

PG	**I**	**high danger**	factor 50
PG	**II**	**medium danger**	factor 3
PG	**III**	**low danger**	factor 1

If the following quantities will not be exceeded per transport unit (truck / truck with trailer / trailer truck), there are eased conditions concerning ADR regulations.

PG	**I**	**20 kgs / liter**	transport category 1
PG	**II**	**333 kgs / liter**	transport category 2
PG	**III**	**1,000 kgs / liter**	transport category 3

Moreover, there are existing the transport categories *"0"* (0 kgs/l) and *"4"* (unlimited quantity).

The nominal volume of the jar counts concerning liquids and concentrated gases, concerning solids and liquid gases it is the real net weight that will be the basis.
If there are transported hazardous goods of different categories, you have to multiply the particular quantity by the factor given. As long as the summation of the results does not exceed the value of 1,000, following exemptions are relevant:

- No danger sign at the transport unit
- No written instructions (accident procedure sheer)
- No protection equipment for the vehicle driver
- No supplementary vehicle equipment for dangerous goods (fire extinguisher is statutory!)
- No training obligations for the vehicle driver (liability to introduce persists!)

If the shipped quantity exceedes the exempted limitation or if the summation of the single transport categories is above 1,000 points, you have to observe all regulations according to ADR as it is a fully-fledged (declareable) transport of hazardous goods.

Important:
If dangerous goods will be un-/loaded or reloaded by CREATON, even in connection with partial shipments which already are loaded on the vehicle, CREATON will take all resulting responsibilities of the shipper according to the law for dangerous goods.

Liability to introduce according to ADR

Chapter 1.3
Introduction of people, involved in the transport of dangerous goods

All involved people according to chapter 1.4, whose field of activities include the transport of hazardous goods needs to be instructed concerning the requirements to transport of hazardous goods within their field of work and responsibility. Employees needs to be instructed accordingly before they will be able to take over the responsibilities according to the regulations of the section 1.3.2. Unless, they just are allowed to execute the tasks that require an appropriate instruction if it will be controlled by a instructed person. The instruction needs to include the special regulations for save transport of dangerous goods stated in chapter 1.10.

1. Training concerning the safety advisor, please se section 1.8.3.
2. Training concerning the vehicle equipment, please see chapter 8.2.
3. Instructions concerning classification 7, please see subsection 1.7.2.5.
4. The instruction need to be communicated before the responsibilities will be transferred concerning the transport of hazardous goods.

1.3.2 Kind of the introduction
The relevant person has to be introduced according to the responsibilities and tasks as follows:

1.3.2.1 Introduction
The personnel needs to be familiar with the common terms of the regulations for transporting hazardous goods.

1.3.2.2 Task realated introduction
The personnel have to be informed about its tasks and responsibilities according to the regulations to carry dangerous goods. In cases of using mulitmodal transports for carrying dangerous goods, the personnel needs to be informed about all correspondent regulations for the different modes of transport.

1.3.2.3 Health and safety briefing
The personnel needs to be informed and instructed about all possible risk and injures that could be caused by the hazardous goods during un-/loading and transport. Target of the instruction is to instruct the personnel concerning save and correct handling and the necessary emergency measures.

1.3.2.4 [refresher course]
The instructions are to refresh and complete constantly in refresher courses to be up to date concerning changes of the regulations.

1.3.3 Documentation
Notes concerning the executed instructions according this chapter are to keep by the employer and to provide to the employee or the responsible authorities if demanded. The notes have to be kept by the employer for the period of time stipulated by the responsible authority. The documentation of the executed instruction is to prove concerning new tasks regularly.

If the transport exceedes the mentionned limits, it is a fully-fledged (declare-able) transport of hazardous goods. In that case, the company has to authorize a risk prevention commissioner. The haulier, the truck driver and the truck and the truck itself have to be checked before loading whether the regulations according to ADR have been observed.