Test Methods, Structures and Contents

Comparison of current AFERA TM structure to various other methods:

- ASTM 1002 Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)
- FINAT FTM 18 Dynamic Shear
- DIN EN 1465 Adhesives - Determination of tensile lap-shear strength of bonded assemblies
- VDA270 Draft Determination of the odour characteristics of trim materials in motor vehicles

Questions to be answered (for structure)

- In how far are we fixed to the current structure of AFERA TM structure?
- Chapter 6 “Solvents” necessary? Proposal to shorten the contents and include them into “Test specimen”
- Chapter 7 “Sampling” necessary?
- Others?

	Afera dyn shear Draft 3		ASTM 1002	FINAT FTM18	DIN EN 1465:2009 (translated)	VDA270 Draft
			Introduction		Introduction	
1	Scope		Scope	Scope	Scope and Application	Scope and Application
				Definition		
2	Reference Documents		Referenced Document		Referenced Documents	
3	Summary of Test Method			Principle	Summary	
			Terminology			Terminology
4	Significance and Use		Significance and Use			Designation
5	Apparatus		Apparatus	Test Equipment	Test Equipment	Test Equipment
6	Solvents					
7	Sampling					
8	Conditioning			Test Conditions		Test Environment
9	Test Specimen		Test Specimen	Sample Preparation		
			Prep. of Test Joints			Sample Preparation
			Preparation of Test Specimen		Test Specimen	Test Specimen
					Conditioning and Test Environment	
10	Procedure		Procedure	Procedure	Procedure	Test Procedure
11	Calculation		Calculations		Results	
12	Report		Report	Results	Report	Evaluation and Report
			Precision and Bias	Repeatability		
				Remarks		
				Notes	Literature	Appendix

- In how far are we fixed to the current structure of AFERA TM structure?
- Chapter 6 “Solvents” necessary? Proposal to shorten the contents and include them into “Test specimen”
- Chapter 7 “Sampling” necessary?
- Proposal to start with an “introduction”

Test Method AFERA Dynamic shear, proposal for <u>structure</u> and contents

Title:

	Afera dyn shear	
	Introduction	
1	Scope	
2	Reference Documents	
3	Summary of Test Method	
4	Significance and Use	
5	Apparatus	
6	Solvents	Omit
7	Sampling	Omit?
8	Conditioning	
9	Test Specimen	
10	Procedure	
11	Calculation	
12	Report	

Test Method AFERA Dynamic shear, proposal for structure and <u>contents</u>

Title: **Dynamic shear strength of double sided PSA tapes**

	Afera dyn shear	
	Introduction	What is the rationale behind the method? Why is it there? What is the added value to the various internal test methods that exist in the member companies of AFERA and maybe elsewhere? Why do we need a lap shear method in addition to ASTM 1002 and DIN EN 1465? (and others as EN205 or ISO 4587) • Method is a standard reference and maybe adapted to specific needs where necessary or appropriate? • Method addresses specific aspects of PSA tapes (e. g. thickness, strength lower than structural adhesives), 1002 and 1465 are predominantly for structural adhesives and metal-to-metal bonds? • Method should embrace the various internal test methods => should leave room for adaptations/alterations? • Should refer predominantly to a standard substrate or leave room for a variety of substrate materials (rigid, however)? Contents of ASTM 1002 and DIN EN 1465 in “introduction”: ASTM 1002: Introduction refers to additional data sharing between producer and purchaser of adhesive regarding processing details of the bonding process (e. g. curing time, mixing ratio ….) DIN EN 1465: intro refers to safety measures and possible environmental concern associated with the materials used.
	Scope	Determination of the tensile shear strength of single-lap-joints at a constant speed of separation, bonded with double sided or transfer PSA tapes Additional considerations: ASTM 1002: SI units as standard. Mentioning health safety measures.
2	Reference Documents	ASTM 1002, DIN EN 1465, others?
3	Summary of Test Method	The test method describes the determination the shear strength of single-lap-joints at a constant speed of separation (+ other specified conditions). The shear resistance of the single-lap-joints is determined by subjecting the joints of rigid-to-rigid substrates (?) to a shear force that acts in parallel to the plane of the bond and in parallel

		to the main axis of the test specimen and that increases as a constant speed of separation is applied. The result is determined as the maximum force and/or the maximum shear stress recorded as well as the failure mode.
4	Significance and Use	ASTM 1002: predominantly for comparative statements; highlights the limits of the use of the values (e.g. delta alpha issue not addressed in the method, limit of statements obtained from small scale samples). DIN EN 1465: Similar but much shorter (under “scope”)
5	Apparatus	Need help for proper definition/description Employment of hooks as standard option?
6	Solvents	Omit
7	Sampling	Omit?
8	Conditioning	Test specimen: conditioning at 23 °C, 50% r.h. for 24 h before measurement, measurement: to be conducted at same conditions
9	Test Specimen	Close to square geometry, standard size 25 mm width X 30 mm length. Different sizes possible but need to be documented. Substrates?? “Standard” steel? Others? Bonding pressure? 10, 20, 100 N/cm²? Time (significant?)?
10	Procedure	Test speed: standard speed 5 mm/min? Different speeds possible but need to be documented. Speed has significant influence on result. (5 mm/min: 100 µm thick tape with max strain appr. 500 µm => 6 s per measurement, 1000 µm foam tape with max strain appr. 5 mm => 1 min per measurement). Number of specimen: min 5?
11	Calculation	Result in MPa (= N/mm²) and/or in N/cm²? Typical values will be between 0.1 and 0.5 MPa = 10 – 50 N/cm² Note: Evaluation of other data possible, e.g. strain, modulus
12	Report	Max values and failure mode