



Dynamic mechanical analysis (DMA, also known as dynamic mechanical spectroscopy) is a technique used to study and characterize materials. It is most useful for studying the viscoelastic behavior of polymers. A sinusoidal stress is applied and the strain in the material is measured, allowing the user to determine the complex modulus.

The temperature of the sample or the frequency of the stress can be varied and lead to variations in the complex modulus.

动态力学分析 (DMA, 又称动态机械学) 是研究和表征材料的一种技术, 主要用于聚合物的粘弹性行为研究中。用户通过施加正弦曲线应力并同时测量材料中的应变, 可以获得复数模量参数。

可以改变样品所处的环境温度或应力频率, 获得不同复合模量参数。

The BASALT®-N2 Tester can be used to fulfill the following standards:

BASALT®-N2 可以满足以下标准:

DIN ISO 3384-1:2015-12

Determination of stress relaxation in compression – part 1: Testing at constant temperature

DIN ISO 3384-1:2015-12 标准

压缩应力松弛的测定实验 - 第 1 部分: 恒温试验

DIN ISO 53513:1990-03

Determination of the viscoelastic properties of elastomers on exposure to forced vibration at non-resonant frequencies

DIN ISO 53513:1990-03 标准

非共振频率下弹性体受迫振动粘弹性性质的测定

Fast relaxation analysis (FRA)

At the Institute for Bioprocessing and Analytical Measurement Techniques, Heiligenstadt / Germany (iba), a new method was discovered with BASALT®-Testers (BASALT®-MUST, BASALT®-N2) specifically for soft matters and bio polymers. This method is using the effect of the fast relaxation response under defined force application or defined penetration depth.

Based on the achieved results, the BASALT®-Tester Platform was expanded by the BASALT-DSPA to perform dynamic and static penetration and adhesion experiments according to the DMA standards, the FRA method and frictional tests as well. Avateramedical Mechatronic GmbH (former TETRA GmbH) and KOMPASS GmbH joined their forces in the development of the new DSPA soft matter tester.

快速弛豫分析 (FRA)

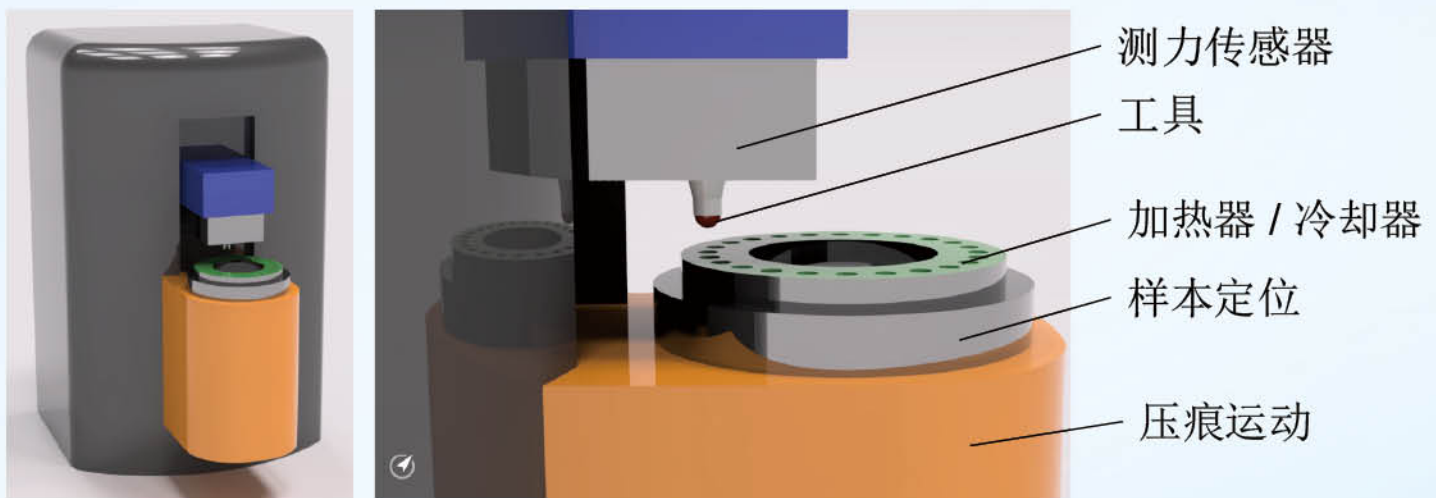
At the Institute for Bioprocessing and Analytical Measurement Techniques, Heiligenstadt / Germany (iba), a new method was discovered with BASALT®-Testers (BASALT®-MUST, BASALT®-N2) specifically for soft matters and bio polymers. This method is using the effect of the fast relaxation response under defined force application or defined penetration depth.

在德国海利根施塔特生物处理和分析测量技术研究所 (IBA), 针对软物质和生物聚合物使用 BASALT® 测试仪 (BASALT®-MUST, BASALT®-N2) 时发现了一种新的方法: 该方法利用了规定的力作用下或在规定的穿透深度下快速松弛响应的影响效应。



Based on the achieved results, the BASALT®-Tester Platform was expanded by the BASALT-DSPA to perform dynamic and static penetration and adhesion experiments according to the DMA standards, the FRA method and frictional tests as well. Avateramedical Mechatronic GmbH (former TETRA GmbH) and KOMPASS GmbH joined their forces in the development of the new DSPA soft matter tester.

基于所获得的实验结果，结合 DMA 标准、FRA 方法和摩擦试验，BASALT-DSPA 对 BASALT® 测试平台进行了扩展，从而可以进行动态和静态渗透和粘附试验。阿瓦特拉医疗机械电子有限公司（前 Tetra GmbH）和 Kompass GmbH 联合开发了新型 DSPA 软物质测试仪。



Pos.	Parameter 参数	Unit 单位	Value 数值
1	Experimental force (push / pull) by high-precision capacity force sensor (enabled to FT = 10mN, FT = 100mN and FT = 1000mN) 高精度容量力传感器的实验力（推 / 拉）（启用为 ft=10 mn, ft=100 mn, ft=1000 mn）	N	± 1 (± 0.5) 拉紧 / 放松
2	Force resolution (19 Bit@1kHz) 力分辨率	N	0.001
3	Data acquisition rate max. 最大数据采集率	S/s	1,000
4	Experimental movement range Z-axis 实验运动范围 Z 轴	mm	10 (5)
5	Resolution of position 位置分辨率	mm	0.01 (0.005)
6	Experimental speed (fixed levels) 实验速度（固定水平）	mm/s	0.01 ...5
7	Temperature range sample (heating) 温度范围样品（加热）	°C	ambient ... 80 环境
8	Resolution temperature measurement 分辨率温度测量	K	< 0,5
9	Test specimen / tool Ø (options on request) 试样 / 工具 _（根据要求提供选项）	mm	2.5 mm
10	Experimental options included: Reciprocation rotational friction measurement radius Speed Angle / POD Quasi linear reciprocation friction measurement by 1° rotation angle 实验选项包括： 往复转动摩擦测量半径，速度，角度 / 吊舱，用 1° 旋转角测量准线性往复摩擦	mm mm/s degrees degrees	30 5 360 0.5 - 1

Note: Complex modulus and analysis algorithm can be optionally developed and provided, upon specific request, on paid-service basis.

注：可根据具体要求，在付费服务的基础上，选择开发和提供复模量和分析算法。