

TPT SERIES

TIME-PRESSURE TEST APPARATUS / TEST FOR OXIDIZING LIQUIDS

The TPT Series™ (Time-Pressure Test Apparatus) is used for the hazard classification of dangerous substances (flammable, oxidizing and energetic materials) according to the UN Recommendations on the Transport of Dangerous Goods. The test is based on ignition of a tested substance in a semi-closed vessel and measurement of the resulting pressure-time profile.



APPLICATIONS

Determination of the burning characteristics (tendency to ignition-to-deflagration transition and its violence) under confinement is an important parameter for hazard assessment of energetic chemicals in production, handling and transportation in chemical and explosives industries. Results obtained by standardized tests (max. pressure and pressure rise time etc.) provide safety information about violence of decomposition. Specific energy determines the amount of mechanical energy released by tested substances.



Standard TPT vessel parts



TPT 3000 vessel parts: LP up to 100 Bar • HP up to 3,000 Bar

There are two versions of TPT Series vessels available:

| Version | (Standard) TPT vessel | TPT 3000 vessel |
|--------------------------------------|-----------------------|-----------------------|
| Maximum working pressure | 100 bar | 3,000 bar |
| Vessel design | Semi-closed | Semi-closed or closed |
| Testing according to UN/EU standards | YES | YES |
| Determination of specific energy | NO | YES |



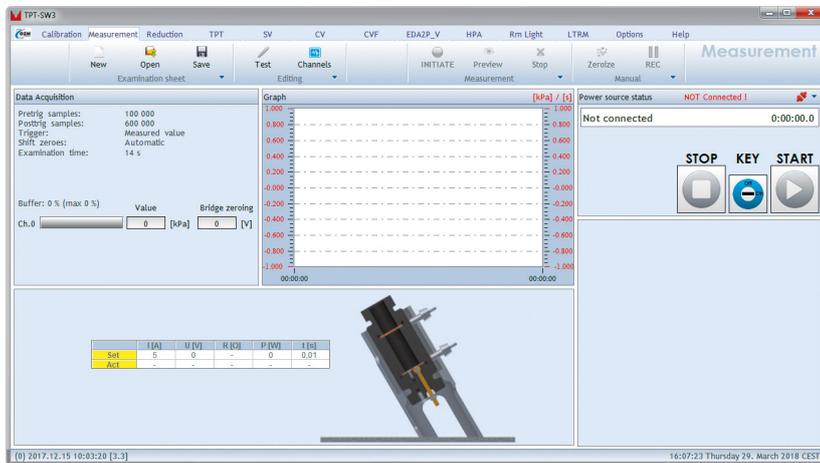
OZM Research s.r.o.
 Bliznovice 32, 538 62 Hrochuv Týnec
 CZECH REPUBLIC / European Union
 Tel.: +420 469 692 341
 Mobile: +420 608 742 777
 E-mail: ozm@ozm.cz
www.ozm.cz

ADVANTAGES & FEATURES

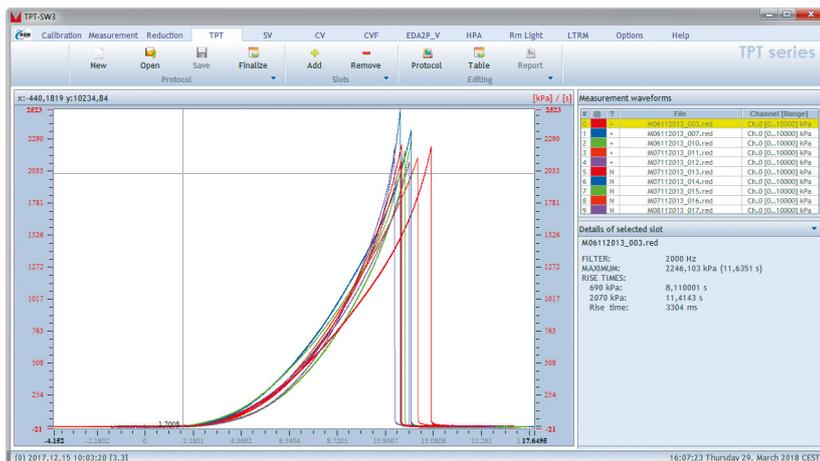
- ▶ Two stainless steel testing vessels containing a set of adapters for different testing procedures are available:
 - / standard **TPT** semi-closed testing vessel with working pressure up to 100 bar
 - / **TPT 3000** semi-closed or closed testing vessel for high pressure testing up to 3,000 bar
- ▶ Precise pulse power source for ignition by an electric fuse or a hot wire
- ▶ Strain-gauge pressure sensors with a tailored data acquisition system
- ▶ Test results: pressure vs. time profile, maximum pressure and specific energy
- ▶ Simple operation, control, measurement, calibration and data evaluation by **TPT-SW** software

COMPLIANCE

- **UN Recommendation on the Transport of Dangerous Goods, Manual of Tests and Criteria**, [Test 1(c)(i)], [Test 2(c)(i)], [Test C.1: Time/pressure Test], or [Test O.2: Test for Oxidizing Liquids]
- **European Commission Directive 2004/73/EC** – The Classification, Packing and Labeling of Dangerous Substances, Method A.21: Oxidizing properties (Liquids)
- **UN Recommendation on the Transport of Dangerous Goods, Manual of Tests and Criteria**, [Appendix 7: HSL Flash Composition Test]
- **UN Recommendation on the Transport of Dangerous Goods, Manual of Tests and Criteria**, [Test O.1: Test for Oxidizing Solids]



Measurement window in TPT-SW3 software



Evaluation procedure for Oxidizing Liquids Tests in TPT-SW3 software – Graph and Table



OZM Research s.r.o.
 Bliznovice 32, 538 62 Hrochuv Tynec
 CZECH REPUBLIC / European Union
 Tel.: +420 469 692 341
 Mobile: +420 608 742 777
 E-mail: ozm@ozm.cz
www.ozm.cz