POSSIBILITIES OF ERRORS IN HANDLING THE TNT-EQUIVALENT

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A damaging event is quite frequently judged by relating it to the damage caused by an equivalent quantity of TNT. This means that certain signs in the appearance of damage, for instance broken windows in a certain distance from the event, are used to conclude the quantity of the reacted substance which in generally expressed in TNT-Equivalent. However, in the propagation of pressure and the destructive action, a great number of single effects must be taken into consideration, which are presented and analyzed in detail:

- TNT-Equivalent with respect to the maximum overpressure or impulse of the positive pressure phase.
- Detonative, deflagrative and slower, burning type reaction respectively
- Side-on blast wave or reflected blast wave at the object surface considered
- Influence of charge geometry on pressure-wave propagation
- Influence of the confinement on the blast wave in general and directional effects respectively
- Effective demolition mechanism caused by maximum pressure, impulse and a combination of peak overpressure and impulse in terms of a Damage Number
- Mathematical derivation of the different distance equations depending on the destruction effect in the RW-plane.

The possible errors shall be thoroughly investigated and opened to discussion by detailed presentation of the different influence parameters.