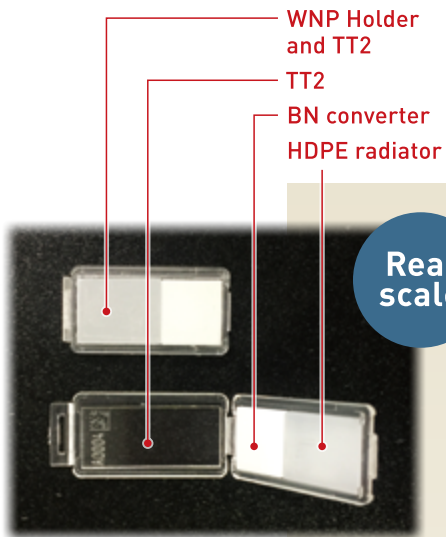


# Wide-range Neutron Pit (WNP) System

Wide-range Neutron Pit (WNP) is our original neutron dosimeter system. The dosimeter consists of TechnoTrak2 (TT2) detector and WNP holder. Two kinds of filters, radiator and converter are built into WNP holder, and enable to measure wide-range energy of neutron, namely fast to thermal neutrons. High Density Poly Ethylene (HDPE) and Boron Nitride (BN) are used for the radiator and converter, respectively. In addition, we suggest the efficient etching method and high accuracy microscope reader. The WNP System was developed based on CTC dosimetry service which meets ISO 21909-1.



WNP Holder and TT2

## Products

- TechnoTrak2/WNP holder
- Reader (Microscope): TLS-1000
- Etching kit (optional)

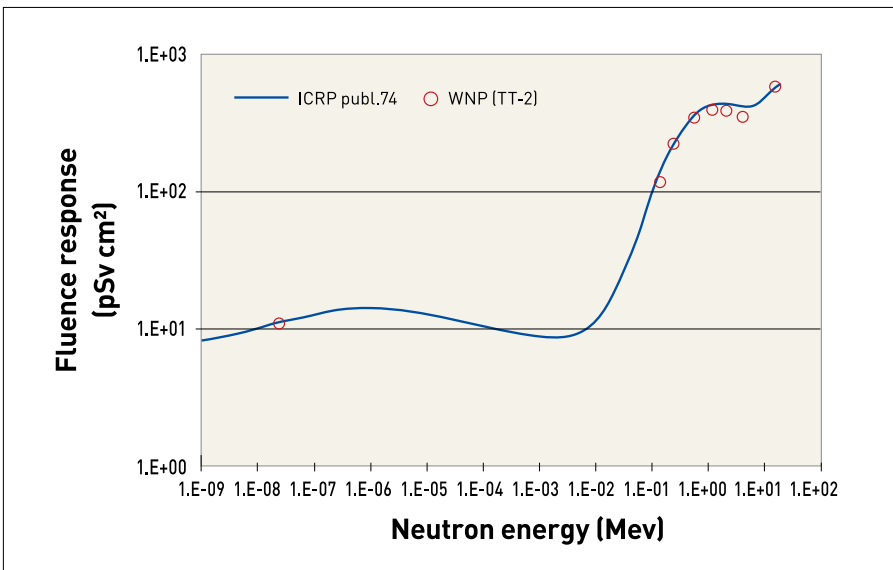
## Applications

- Neutron personal dosimetry



TLS-1000 Reader

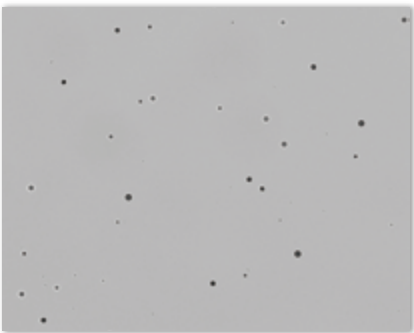
## Excellent energy characteristic



Energy characteristics of WNP  
Result obtained by Oarai Research Center of Chiyoda Technol Corporation

## Advantages

- Pre-etching is not necessary because of almost no false pit.
- Automated separation between etch pit and dust.



Etch-pits by Cf-252 source



Etch-pits by thermal neutron

## Specifications

|           |   |  |
|-----------|---|--|
| Dosimeter | Detector                                    | TechnoTrak2 (TT2) 360 detectors/sheet                                    |
|           |   | 8.5 mm x 19 mm with ID number  |
|           | Holder                                      | WNP Holder   |
|           |   | Radiator: High Density Poly Ethylene (HDPE)                              |
|           |   | Converter: Boron Nitride (BN)  |
|           |   | Size: W11.5 x D22 x H3.5 mm  |
|           | Energy range                                | Neutron: 0.025 eV to 15 MeV  |
|           | Dose range                                  | Fast neutron: 0.1 mSv to 60 mSv<br>Thermal neutron: 0.1 mSv to 8 mSv     |
|           | Neutron sensitivity ( <sup>241</sup> Am-Be) | 1240 ± 30(1σ) etch-pits/cm²/mSv (with HDPE)                              |
|           | Background noise                            | 20 ± 20(1σ) etch-pits/cm²  |
|           | ID  | 1 alphabet and 4 digits number   |
| Reader    | Dissolution                                 | 0.550 μm/pixel   |
|           | Viewing field                               | 1.268 mm² (1.126 mm x 1.126 mm)  |
|           | Auto focus                                  | Contrast mode/Surface detection mode                                     |
|           | ID reading                                  | Automatic ID recognition unit  |
|           | Readout time                                | It can measure 100 TT2 detectors within 2 hours successively.            |
|           | Continuous reading                          | 100 detectors  |
|           | Analysis function                           | PitFit2 can present the distribution chart of pit.                       |
|           | Power supply                                | 200 V, Power Consumption 500 VA or less                                  |
|           | Power consumption                           | Max. 500 W   |
|           | Dimensions/weight (excluding PC unit)       | W884 x D805 x H800 mm, 115 kg  |
|           | Imaging                                     | Multi-layer imaging: Automatic recognition of adhered dusts in the image |