

Laboratory Dispersion Unit DL 05

device for manufacturing of nanoscale Zero-Valent Iron (nZVI) slurry

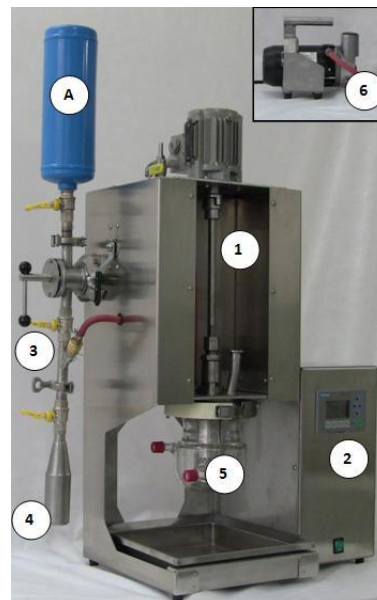
Laboratory dispersion unit LD 05 is designed for direct manufacturing of nZVI slurry from the dry powder ([NANO FER 25P](#)).

The equipment provides manufacturing capacity of 500 grams of slurry in 20 minutes, thus it fits to the research laboratories working with zero-valent iron nanoparticles. Besides nZVI it is also possible to disperse other nano-powder materials in almost any liquid. Laboratory dispersing unit LD 05 is equipped with vacuum pump and inert gas inlet with automatic regulation enabling to process metal nano-powders and slurries under protective atmosphere. Protective inert atmosphere prevent product degradation by air oxygen.

LD 05 components:

1. LD 05 body, made from stainless steel,
2. automatic control unit regulating dispersing speed and securing protective atmosphere,
3. batching plant for transfusion of nano-material from a transportation keg (A) into the reservoir (4),
4. reservoir made from stainless steel of inner volume of 0,2l dedicated for dry nano-powder application into the reaction vessel,
5. reactor vessel made from borosilicate glass with jacket for temperature control of the process (heating/cooling); the unit for temperature control is not included,
6. vacuum pump connected to the control unit.

Notice: transportation keg (A) is not included.



Examples of the use of laboratory dispersing unit LD 05:

- I. *Dispersing of nano powder into a liquid (water, liquid polymer, mineral oil, etc.):*
 - manufacturing of standard nZVI dispersion (water + dry nZVI powder NANO FER 25P),
 - development of a new products by dispersing of NANO FER 25P (eventually another nano-material) into a user defined liquid (water with additives, surfactants, etc.),
 - production of EZVI (emulsified zero-valent iron) by dispersing of NANO FER 25P into a liquid (water+mineral oil), NASA license required.
- II. *A system for running reactions:*
 - by application of dry nZVI powder (NANO FER 25P) directly into a concentrated wastewater. By this approach, the highest efficiency of Nanofer product (no degradation of Nanofer), the decontamination ratio and speed is reached.