

## PROJECT

# NANOREINFORCED STEEL CUTTING TOOLS PRODUCED BY METHOD OF SUPERDEEP PENETRATION (SDP-Tools)

Super Deep Penetration (SDP) allows to nano-reinforce the body of the relatively inexpensive high speed steel (HSS) used in the mining industry for making cutting tools



### Advantages of SDP cutting tools

- Longer life of the cutters – operation maintenance savings
- Non-cancerous as to compare to WC/Co alloys
- Significant reduction of the fire / explosion hazard – no sparking
- Operational energy saving up to 30%
- Self- sharpening effect
- Increased life of the mining equipment up to 5 times
- No catastrophic failure: elimination of the dynamic impact on machine

**THE ADVANTAGES  
OF THE NEW NANOREINFORCED  
STEEL CUTTERS FOR CUTTER-LOADERS**

PROPERTY	Wearing Resistance	Power-Consumption	Explosion and Fire Security	Cancerogenic Factor
Alloy: WC+Co	1	1	1	present
Nanocomposite Tool Steel	up to 5	up to 0.7	0.02	absent

- The nanocomposite cutters were successfully tested in various salt mines;
- Consumption: 5 cutters per 1000 t of extracted potassium ore

Patent is submitted