



EFFECTIVE TECHNOLOGIES OF UTILIZATION OF METALLURGY AND MASHYNERY WASTES

DISPERSION WASTES UTILIZATIION

◆ Physico-chemical complex approach to utilization of slurry, shavings, drosses, scales and other dispersed wastes of metallurgy and machinery was developed

◆ Utilization process is high intense, mobile and competitive and provides the common or separate processing of various wastes

◆ Due to high rate of process run the losses of valuable elements are low

| Titanium content in alloy, % |        | Ready alloys amount, % of theoretic one |
|------------------------------|--------|---|
| Theoretical                  | Actual |   |
| 51                           | 47,2   | 88,63                                   |
| 35                           | 33,8   | 90,86                                   |
| 35                           | 34,1   | 89,25                                   |



◆ A process can be realized on a module unit near-by the place of wastes formation

◆ The equipment for process realization is simple in making and exploitation.

◆ Technology is easily returned on utilization of various types of wastes. The products can be ferro-alloys of active elements, sheet bar of stainless or other high alloyed steels and other materials.



## EXTRACTION OF METALS FROM THE WORKED ACID SOLUTIONS AND RETURN IN ALLOY

- The methods of rational approach and technologies of neutralization of harmless worked solutions from etching and galvanic baths, which contain a nickel, chrome, manganese and other valuable metals, were developed.
- Processing chart: The first stage is the precipitation of the dissolved metals in kind of oxides. The second stage is reduction of oxides with the receipt of sheet bar.
- Technology is tested at extraction of nickel and manganese from the worked etching solutions of the Poltava diamond factory with initial concentration of nickel and manganese 70,1 g/l and 90 g/l, accordingly. Specific consumption of precipitants, temperatures of precipitations destruction, specific expense of reduction agent were determined. The through degree of metals extraction made: nickel - 80-85%, manganese 67-75%.



### Advantages of technology

- expenses on providing of ecological safety requirements of discharge considerably reduced.
- organization as common as separate extrac-

tion of metals from solutions is possible

- product of processing - ecologically harmless grade shicht metal bar or returnable alloy catalyst.
- a process can be carried out on a module unit near the place of wastes formation
- does not require substantial operating costs and capital investments.