Techniques for reconditioning an industrial part

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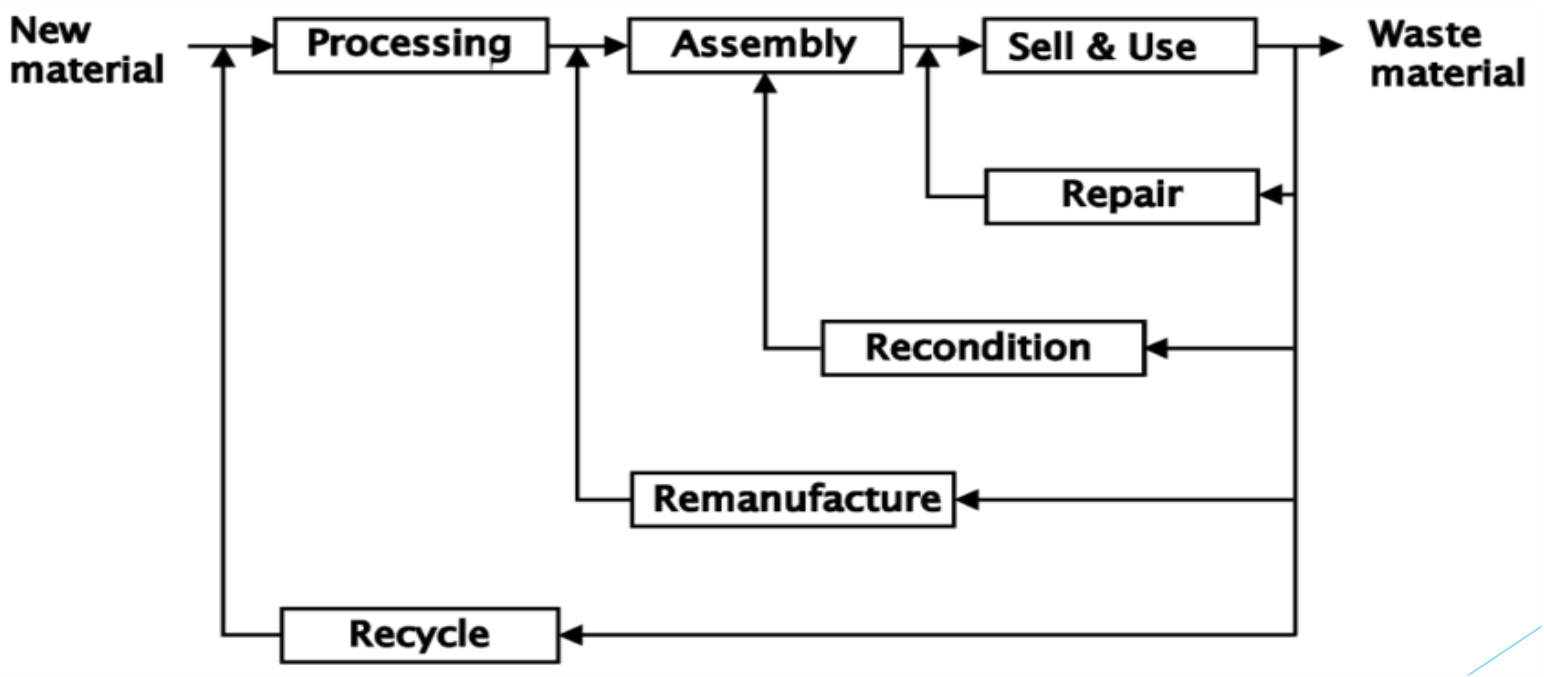
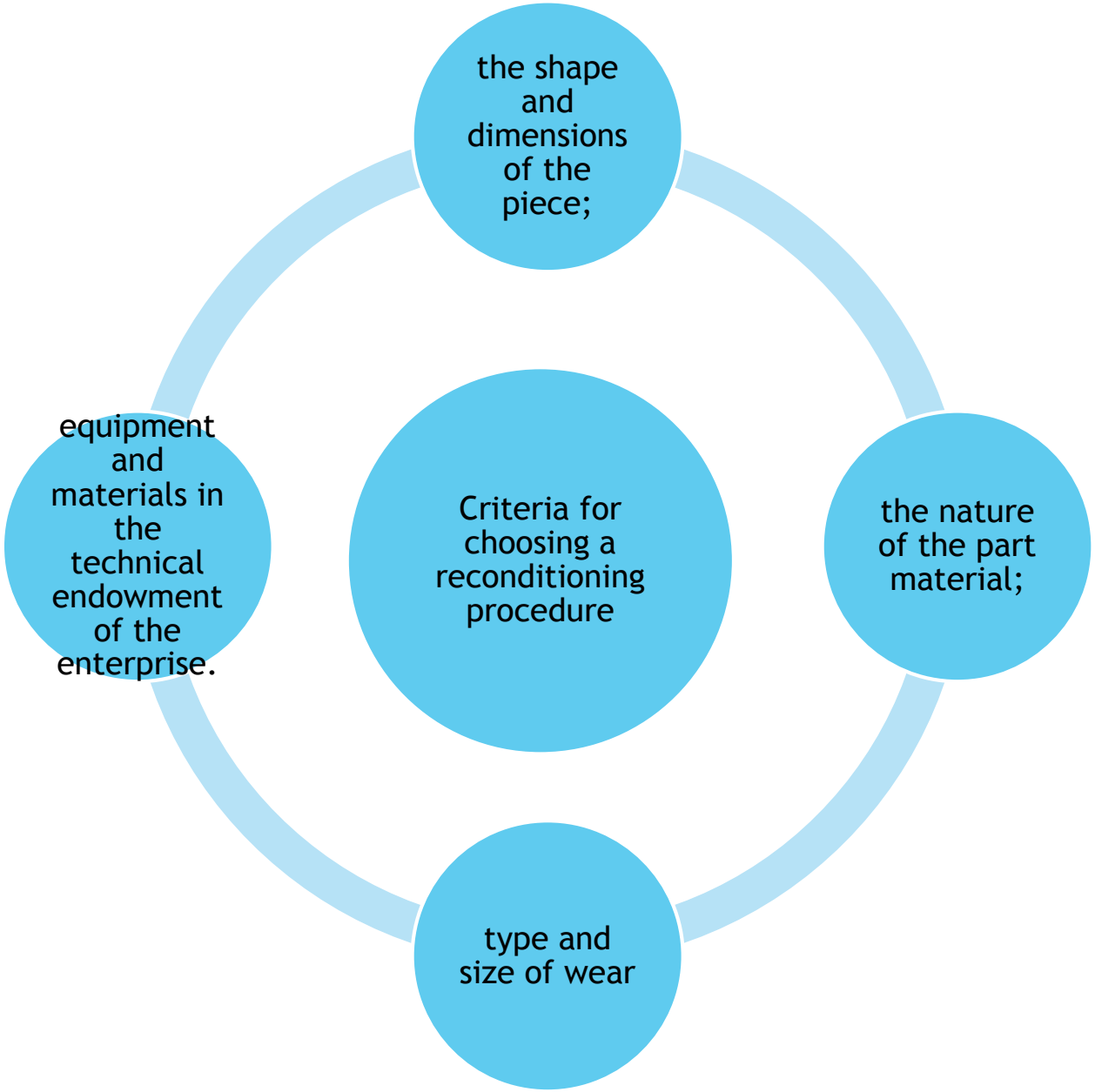
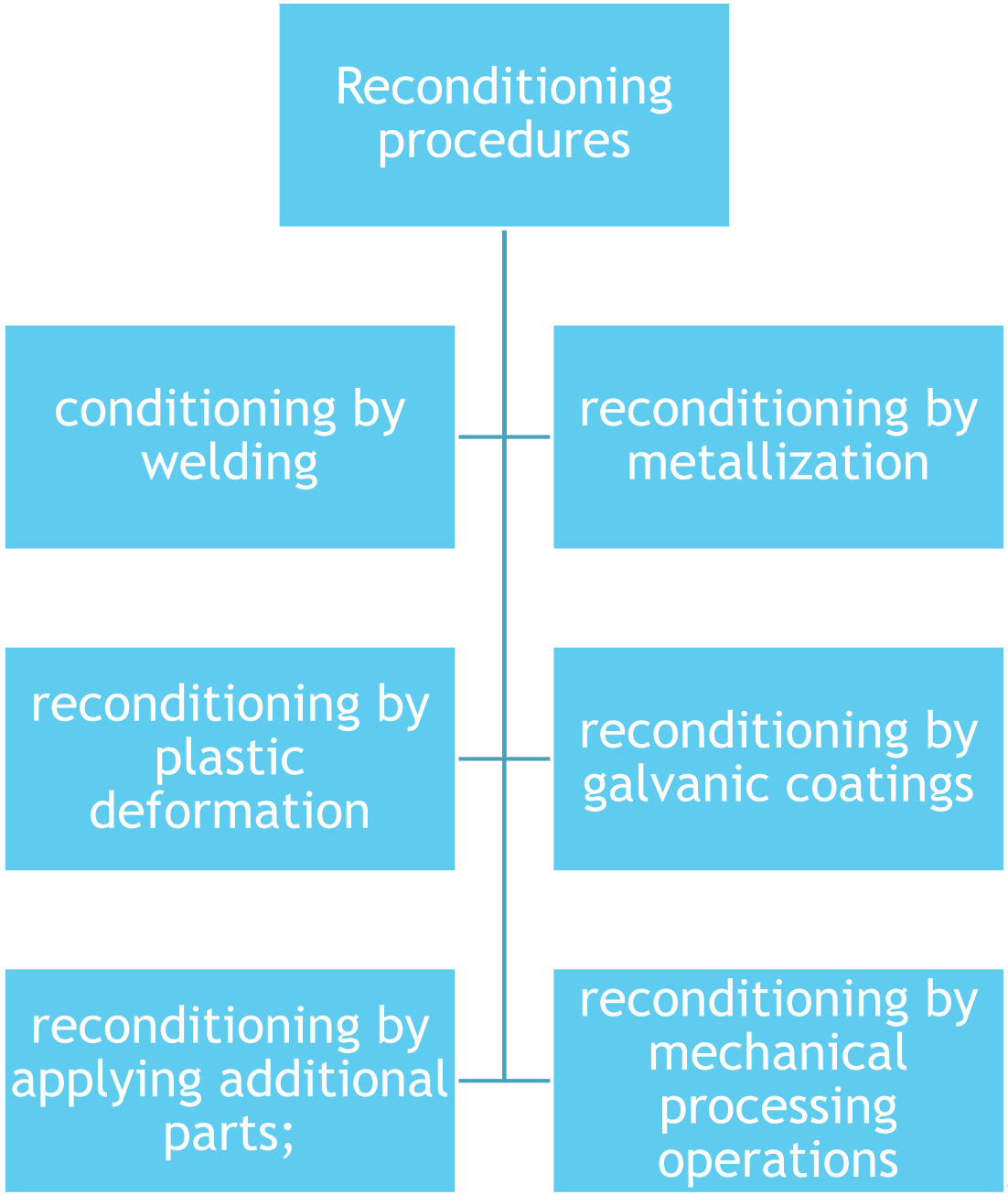
Introduction

Technologies for reconditioning and improving development in improved operating behavior, after reconditioning the parts had to be able to withstand other larger parts of the demands. It is therefore necessary to ensure wear resistance, corrosion resistance, hardness, special thermal and electrical properties and biocompatibility. In this regard, special or special scientific research should be provided in the discovery of new materials and we are developing some modern and efficient care technologies to contribute to the permanent creation of a field.

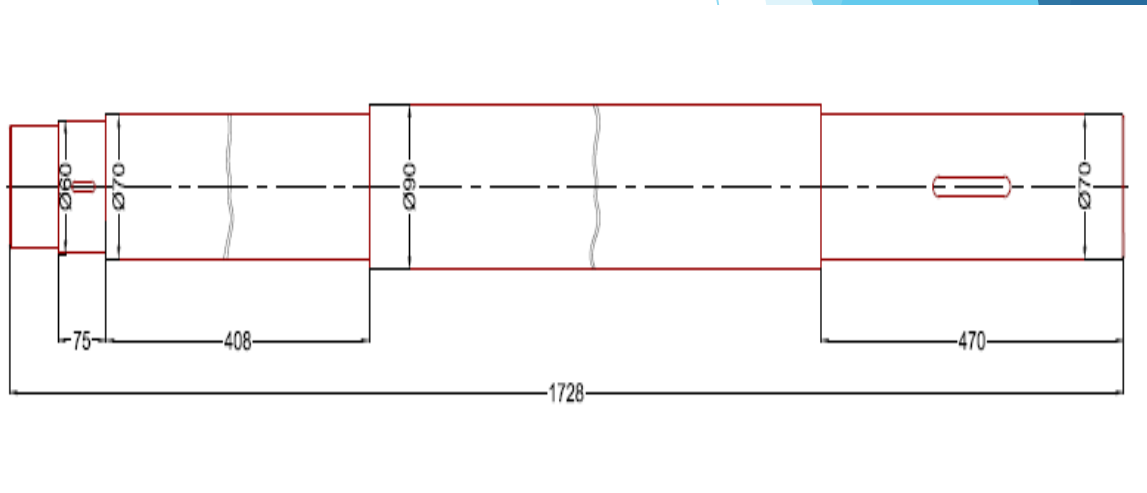


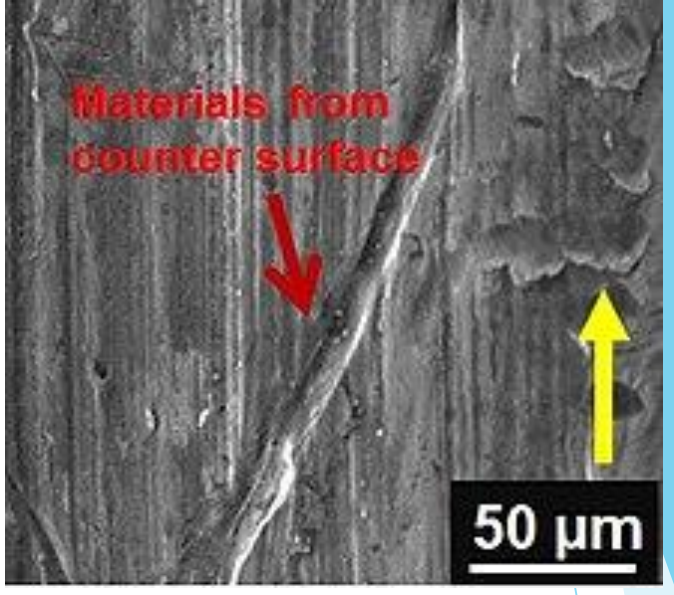

the shape and dimensions of the piece;
the nature of the part material;
type and size of wear
equipment and materials in the technical endowment of the enterprise.
Criteria for choosing a reconditioning procedure


Reconditioning procedures
conditioning by welding
reconditioning by metallization
reconditioning by plastic deformation
reconditioning by galvanic coatings
reconditioning by applying additional parts;
reconditioning by mechanical processing operations

Steps performed for shaft reconditioning

	Operation		
Nr	Steps	tools checking devices	technological indications
1	Job and part preparation, cleaned of impurities and oxides with a wire brush, degreased in alkaline solution(NaOH=50g/l,Na_2CO_3 anh 70g/l, Na_3PO_4 12 H_2O=12g/l si Na_2SiO_3 5 H_2O= 5g/l)	electrochemical degreasing bath	current density=5A/dm^3 t=5min T=80°C P=4atm
2	Visual inspection of pores, cracks, fissures		
3	Checking the dimensions in order to establish the degree of wear at the dimensions φ60-0,046 and φ70-0,054	Measuring STAS1373-73	
4	Preheating to 180◦C	in oven	
5	heating with welding on the hearth of the oven up to the dimensions of φ64- φ74		Is=180AUA=21VVS =0,15m/min
6	scratch	wire brush	
7	shape and size control	Measuring STAS1373-73	
8	resizing annealing heat treatment	oven treatment	T=600◦Ct=70min
9	roughing turning at the elbows φ60, 6x75mm - φ70,6x470mm	roughing knife STAS6376-80	v=24m/mint=1,5 mms=0,50mm/rot
10	finishing turning at the dimensions φ60,0,046x75mm; φ70,0,054x408mm; φ70,0,054x470mm	finishing knife STAS6378-80	v=140m/mint=0,2 mms=0,20mm/rot
11	milled feather channel -0,02 Φ=18-0,075x55x63 mm for spindle with φ60-0,046 and wedge channel Φ=20-0,075x6x80mm for spindle with φ70-0,054		
12	Protection of greased surfaces RUL100 and packed with wax paper and storage		t=55mmDf=60mm Hs=46rot/minS=0, 25mm/rot





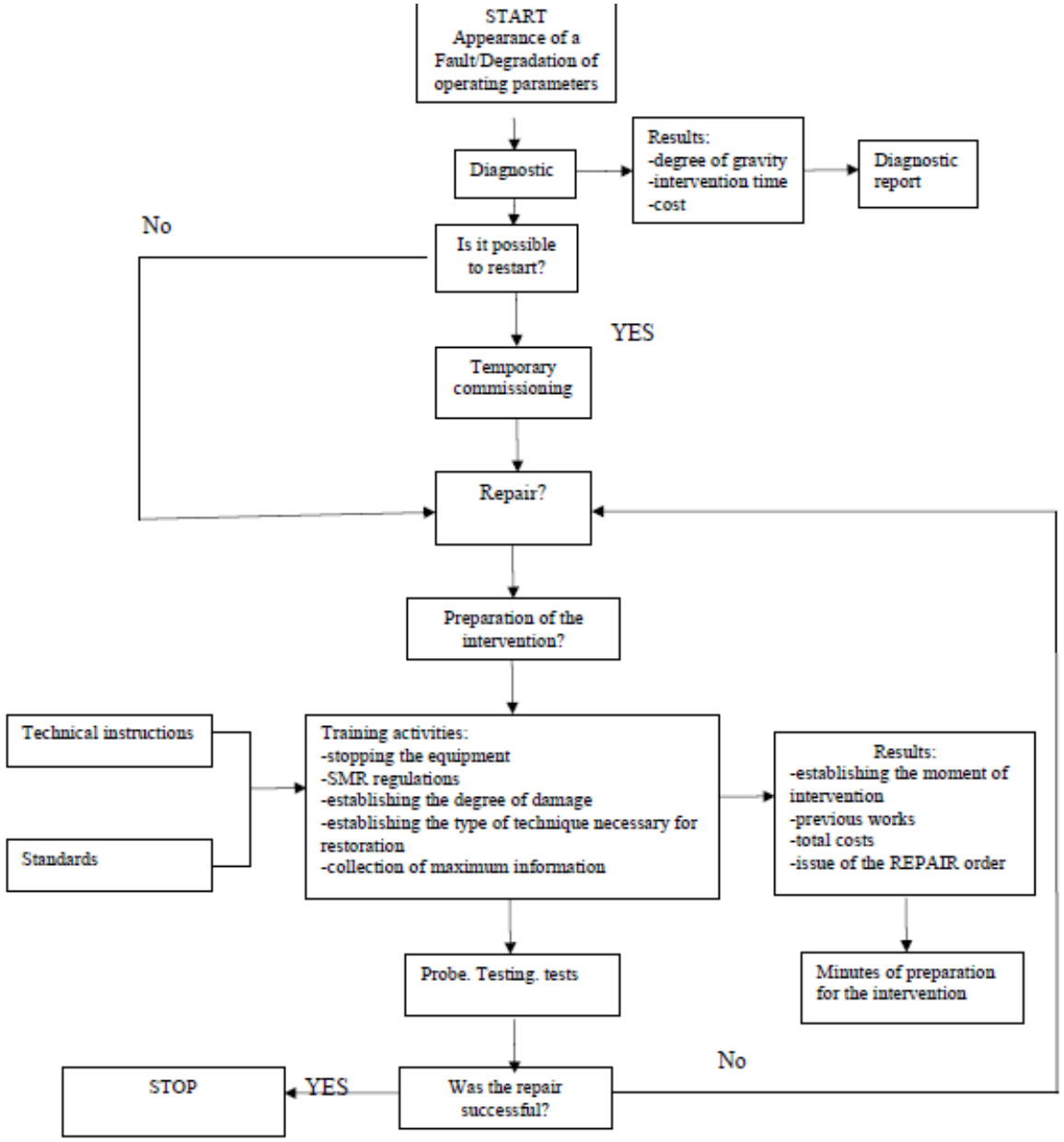
Types of wear

- bending and twisting
- breaking or wear of the shaft ends
- thread damage
- down channel wear

The technological process of repairing used parts is:

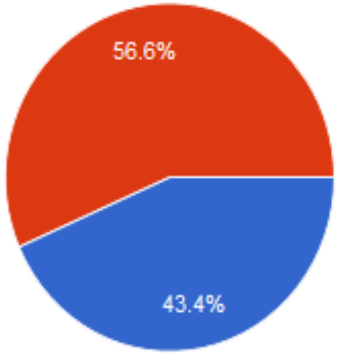
Preparation of the part surface	• degreasing and cleaning of parts; • pre-processing the surface of the worn part in order to give it a correct geometric shape; • creating roughness.
Deposition of the metal layer by spraying	• melting temperature of the electrodes (wire); • quality of the filler material; • electrode advance speed (forming speed of liquid metal droplets); • the air jet pressure that conditions the size and speed of metal particles.
Mechanical processing.	• mechanical processing of smoothing by cutting the surfaces of the part

The reconditioning process

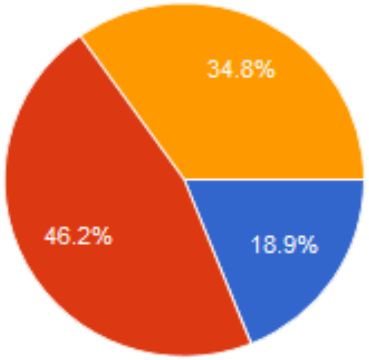


Product life cycle diagram

Market study on product reconditioning



- Recondition
- Throw



The reasons for not reconditioning are:

- **high cost**
- lack of time
- lack of materials needed for reconditioning

Thank you for your attention!