

mesdaghinia@sina.tums.ac.ir :

(II)

(Chemical Oxygen Demand)

(OH

.( Glaze et al.1987)

OH

(AOPs)

Advanced Oxidation Processes

COD

2,4-DCP

Oxidation – Reduction Potential (ORP)

$E^{\circ} = + 3.06 \text{ V}$

$\text{Fe}^{2+}$   $\text{H}_2\text{O}_2$

2,4-DCP

OH

)

(

:(Freeman 1998)

( ) AOPs

DCP

$\text{H}_2\text{O}_2$  /

UV /

$\text{H}_2\text{O}_2$ / UV /

COD BOD<sub>5</sub>

UV/ $\text{H}_2\text{O}_2$

BOD<sub>5</sub>/COD

$\text{Fe}^{2+}$ /  $\text{H}_2\text{O}_2$

H.J.H Fenton

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(Fenton Reaction)

( Fenton Reagent)

.(Nesheiwat et al. 2000)

OH

$\text{H}_2\text{O}_2$

2,4- )

( DCP

.( Bigda 1995)

2,4-DCP

( )



Fe=15 mg/L

2,4-DCP=100 mg/L

pH

mg/L

2,4-DCP

pH=3

Fe=15 mg/L

(II)

( ) H<sub>2</sub>O<sub>2</sub>

H<sub>2</sub>O<sub>2</sub>

Fe=15 mg/L

pH

)

2,4-DCP=50 mg/L

pH (

2,4-DCP=100 mg/L

pH

H<sub>2</sub>O<sub>2</sub>

H<sub>2</sub>O<sub>2</sub>

H<sub>2</sub>O<sub>2</sub> (II)

H<sub>2</sub>O<sub>2</sub>

COD

(Chamaro et al. 2001)

H<sub>2</sub>O<sub>2</sub> =50 mg/L

BOD<sub>5</sub> COD

H<sub>2</sub>O<sub>2</sub>

COD

(APHA 1998)

(II)

H<sub>2</sub>O<sub>2</sub>=50 mg/L

COD %

Fe(II) =5 mg/L H<sub>2</sub>O<sub>2</sub>=50 mg/L

COD %

COD

% COD

COD

Fe(II) =5 mg/L

2,4-DCP=100 mg/L

BOD<sub>5</sub>

H<sub>2</sub>O<sub>2</sub>=50, 75, 100 mg/L

mg/L	COD	COD	H <sub>2</sub> O <sub>2</sub>	H <sub>2</sub> O <sub>2</sub>
BOD <sub>5</sub>	/ / / mg/L			
/ / /	mg/L			
		( )	COD	
COD				% % %
	COD %			
BOD <sub>5</sub> /COD			COD	(II) H <sub>2</sub> O <sub>2</sub>
	/			
COD				
			(II)	H <sub>2</sub> O <sub>2</sub> = 100 mg/L
Fe=15 mg/L	H <sub>2</sub> O <sub>2</sub> =100 mg/L		COD	
	BOD <sub>5</sub> /COD			%
	( )	/		5 mg/L
			%	COD
	BOD <sub>5</sub> /COD			
			H <sub>2</sub> O <sub>2</sub> = 100 mg/L	
			10 min	Fe(II) = 5 mg/L
			%	COD
BOD <sub>5</sub> /COD	Fe=10 mg/L	H <sub>2</sub> O <sub>2</sub> =50 mg/L	COD	
/	2,4-DCP=50 mg/L			
				( )
H <sub>2</sub> O <sub>2</sub> =100 mg/L	Fe=15 mg/L			
/		BOD <sub>5</sub> /COD		H <sub>2</sub> O <sub>2</sub>
		( )		COD % %
	BOD <sub>5</sub> /COD		COD	(II)
Fe=15 mg/L				
Fe=15 mg/L			H <sub>2</sub> O <sub>2</sub> =75 mg/L	
	BOD <sub>5</sub> /COD			Fe(II) = 10 mg/L
			COD	2,4-DCP=100 mg/L
	BOD <sub>5</sub> /COD			



/...

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%

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COD

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Fe(II)=10 mg/L	H <sub>2</sub> O <sub>2</sub>		2,4-DCP=50 mg/L				$\frac{BOD_5}{COD}$		BOD <sub>5</sub> · COD			
	Fe=10 mg/L											
	H <sub>2</sub> O <sub>2</sub> =100 mg/L			H <sub>2</sub> O <sub>2</sub> =75 mg/L			H <sub>2</sub> O <sub>2</sub> =50 mg/L					
$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	min
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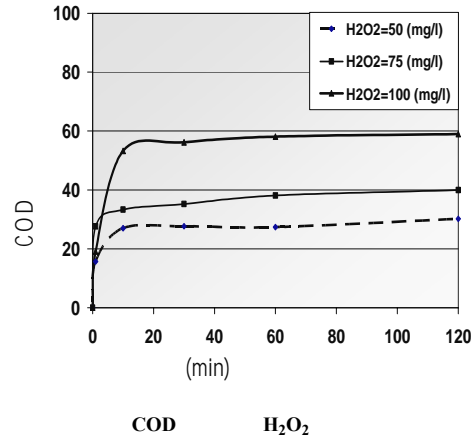
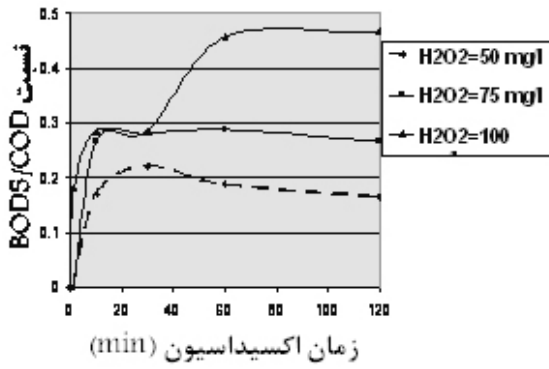
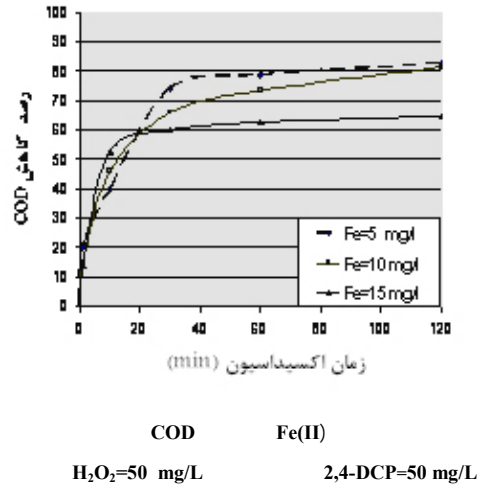
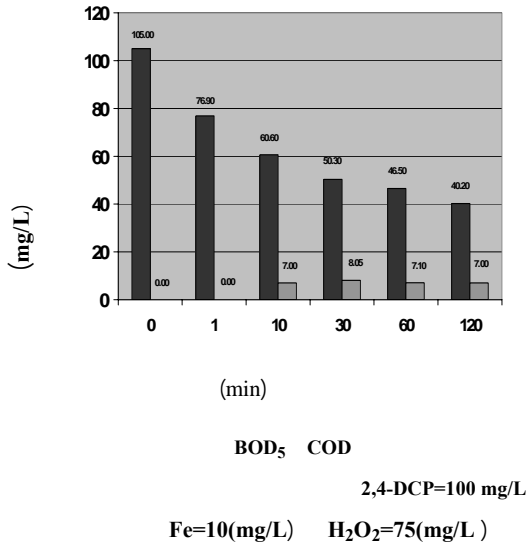
Fe(II)=15 mg/L	H <sub>2</sub> O <sub>2</sub>		2,4-DCP=50 mg/L				$\frac{BOD_5}{COD}$		BOD <sub>5</sub> · COD			
	Fe=15 mg/L											
	H <sub>2</sub> O <sub>2</sub> =100 mg/L			H <sub>2</sub> O <sub>2</sub> =75 mg/L			H <sub>2</sub> O <sub>2</sub> =50 mg/L					
$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	min
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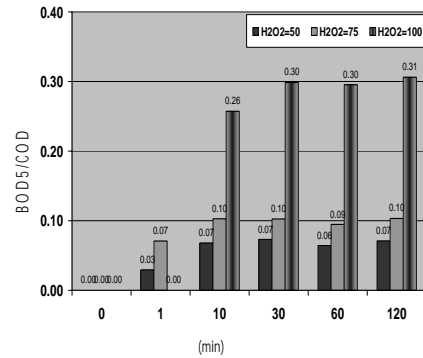
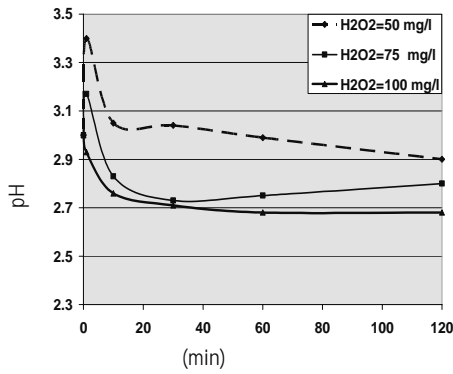
Fe(II)=10 mg/L	H <sub>2</sub> O <sub>2</sub>		2,4-DCP=100 mg/L				$\frac{BOD_5}{COD}$		BOD <sub>5</sub> · COD			
	Fe=10 mg/L											
	H <sub>2</sub> O <sub>2</sub> =100 mg/L			H <sub>2</sub> O <sub>2</sub> =75 mg/L			H <sub>2</sub> O <sub>2</sub> =50 mg/L					
$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	min
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Fe(II)=15 mg/L	H <sub>2</sub> O <sub>2</sub>		2,4-DCP=100 mg/L				$\frac{BOD_5}{COD}$		BOD <sub>5</sub> · COD			
	Fe=15 mg/L											
	H <sub>2</sub> O <sub>2</sub> =100 mg/L			H <sub>2</sub> O <sub>2</sub> =75 mg/L			H <sub>2</sub> O <sub>2</sub> =50 mg/L					
$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD <sub>5</sub> mg/L	COD	COD mg/L	min
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Fe=15 mg/L H<sub>2</sub>O<sub>2</sub> 2,4-DCP=50 mg/L

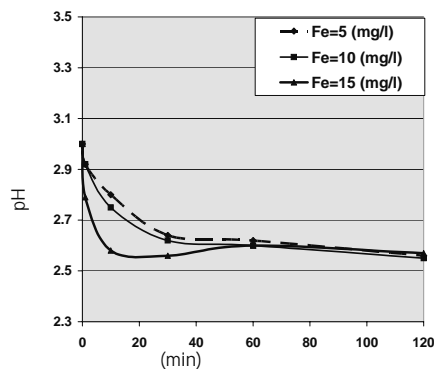
Fe(II)=15 mg/L 2,4-DCP=100 mg/L



2,4-DCP=100 mg/L

Fe=15 mg/L

H<sub>2</sub>O<sub>2</sub>



pH :  
2,4-DCP=100 mg/L

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