

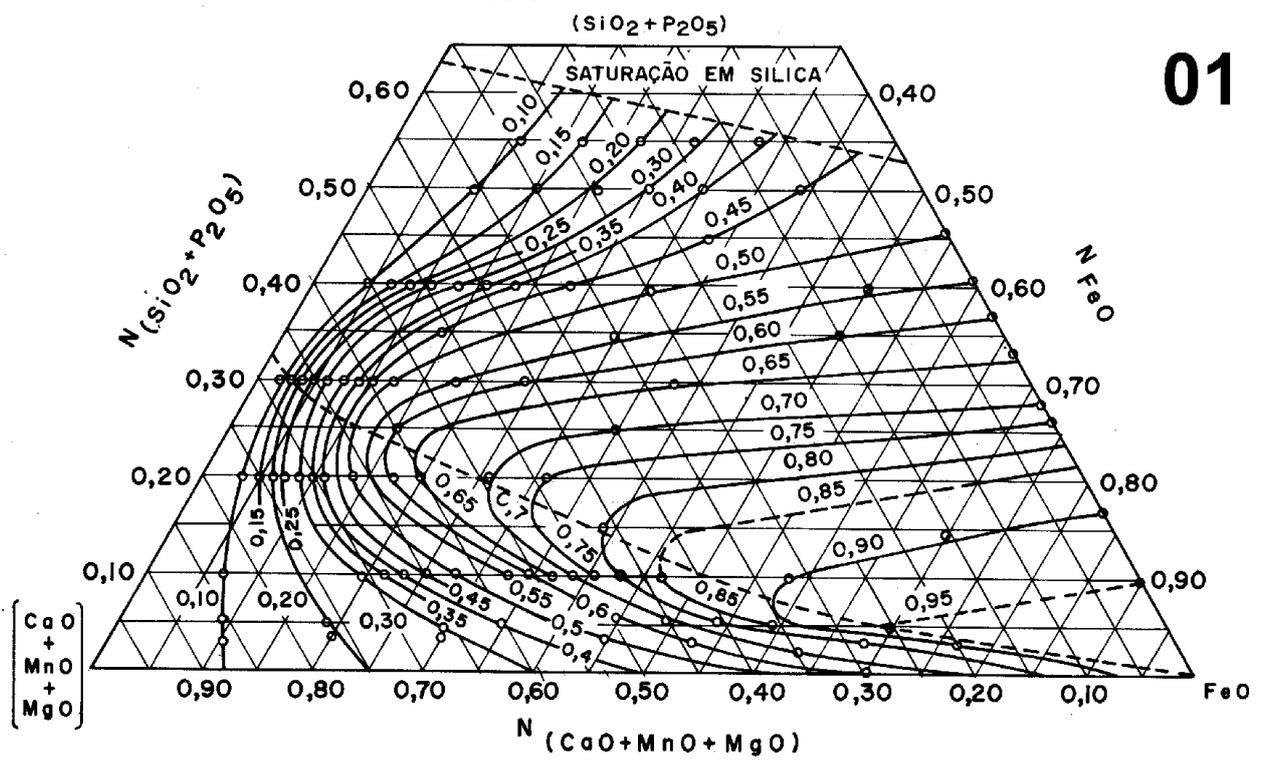


ESCOLA POLITÉCNICA DA USP
Departamento de Eng^a Metalúrgica e de Materiais
DIAGRAMAS DE ISOATIVIDADES
Professor: Flávio Beneduce

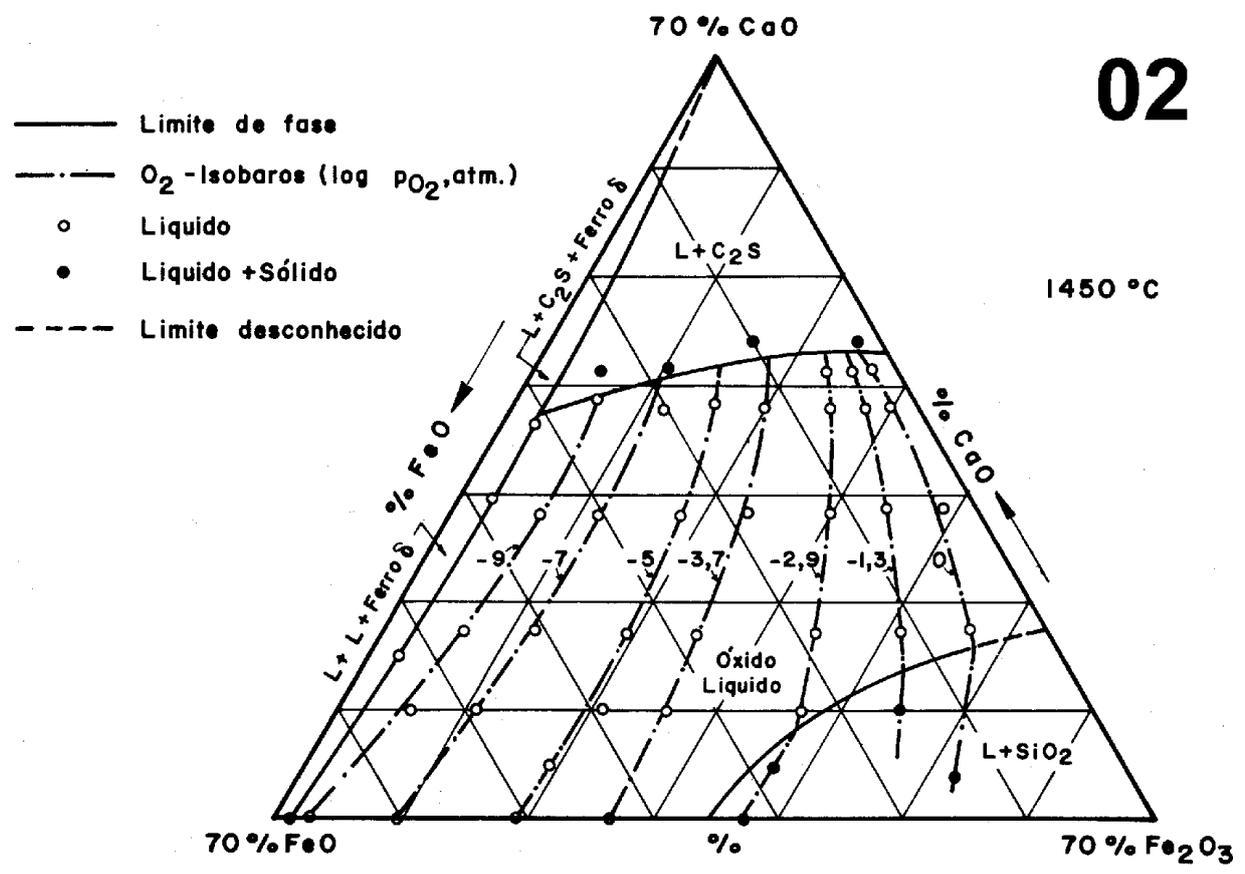
Rev: mar/2015

	01 FeO	02 Isóbaros O₂	03 Iso O₂ (30%SiO₂)	04 Iso O₂ (20%SiO₂)
SISTEMA	escórias complexas	CaO SiO ₂ FeO Fe ₂ O ₃	CaO SiO ₂ FeO Fe ₂ O ₃	CaO SiO ₂ FeO Fe ₂ O ₃
TEMPERATURA	1550°C a 1650°C	1450 °C	1550 °C	1450 °C
COMPOSIÇÃO	fração molar	porcentagem	Porcentagem	porcentagem
ESTADO PADRÃO	líquido puro	gás ideal 1 atm	gás ideal 1 atm	gás ideal 1 atm
	05 Iso O₂ (20%SiO₂)	06 Iso O₂ (10%SiO₂)	07 Iso O₂ (10%SiO₂)	08 Iso O₂ (5%SiO₂)
SISTEMA	CaO SiO ₂ FeO Fe ₂ O ₃	CaO SiO ₂ FeO Fe ₂ O ₃	CaO SiO ₂ FeO Fe ₂ O ₃	CaO SiO ₂ FeO Fe ₂ O ₃
TEMPERATURA	1550 °C	1450 °C	1550 °C	1450 °C
COMPOSIÇÃO	porcentagem	porcentagem	Porcentagem	porcentagem
ESTADO PADRÃO	gás ideal 1 atm	gás ideal 1 atm	gás ideal 1 atm	gás ideal 1 atm
	09 Iso O₂ (5%SiO₂)	10 FeO (baixo MnO,MgO,P2O5)	11 FeO	12 FeO Fe₂O₃
SISTEMA	CaO SiO ₂ FeO Fe ₂ O ₃	CaO SiO ₂ FeO	CaO SiO ₂ FeO	CaO FeO Fe ₂ O ₃
TEMPERATURA	1550 °C	1600 °C	1550 °C	1550 °C
COMPOSIÇÃO	porcentagem	fração molar	fração molar	fração molar
ESTADO PADRÃO	gás ideal 1 atm	líquido puro	líquido puro	líquido puro
	13 SiO₂ FeO Fe₂O₃	14 SiO₂ FeO	15 MnO SiO₂ FeO	16 MnO (x_{FeO}=0,05)
SISTEMA	SiO ₂ FeO Fe ₂ O ₃	SiO ₂ FeO Fe ₂ O ₃	MnO SiO ₂ FeO	escórias complexas
TEMPERATURA	1550 °C	1350 °C	1550 °C	1550 °C a 1750 °C
COMPOSIÇÃO	fração molar	fração molar	fração molar	fração molar
ESTADO PADRÃO	SiO ₂ Fe ₂ O ₃ (Sp) FeO(Lp)	SiO ₂ (Sp) FeO (Lp)	MnO FeO (Lp) SiO ₂ (Sp)	líquido puro
	17 MnO (x_{FeO}=0,15)	18 MnO (x_{FeO}=0,20)	19 Coef Ativ MnO	20 MnO
SISTEMA	escórias complexas	escórias complexas	escórias complexas	MnO SiO ₂ CaO
TEMPERATURA	1550 °C a 1750 °C	1550 °C a 1750 °C	1600 °C	1500 °C
COMPOSIÇÃO	fração molar	fração molar	fração molar	fração molar
ESTADO PADRÃO	líquido puro	líquido puro	sólido puro	sólido puro
	21 MnO	22 Coef Ativ MnO	23 MnO	24 SiO₂ (11% Al₂O₃)
SISTEMA	MnO SiO ₂ CaO	CaO SiO ₂ MnO Al ₂ O ₃	MnO SiO ₂ FeO	CaO SiO ₂ MgO Al ₂ O ₃
TEMPERATURA	1650 °C	1650 °C	fabricação do aço	1550 °C
COMPOSIÇÃO	fração molar	fração molar	fração molar	porcentagem
ESTADO PADRÃO	sólido puro	sólido puro	líquido puro	sólido puro
	25 SiO₂	26 SiO₂	27 Coef Ativ SiO₂	28 SiO₂
SISTEMA	MgO SiO ₂ CaO	CaO SiO ₂ Al ₂ O ₃	CaO SiO ₂ FeO	CaO SiO ₂ Al ₂ O ₃
TEMPERATURA	1600 °C	1550 °C	1600 °C	1500 °C
COMPOSIÇÃO	fração molar	fração molar	fração molar	fração molar
ESTADO PADRÃO	sólido puro	sólido puro	sólido puro	sólido puro
	29 CaO SiO₂ Al₂O₃	30 CaO SiO₂ Al₂O₃	31 Coef Ativ Cao	32 CaO
SISTEMA	CaO SiO ₂ Al ₂ O ₃	CaO SiO ₂ Al ₂ O ₃	CaO SiO ₂ FeO	CaO SiO ₂ Al ₂ O ₃
TEMPERATURA	1600 °C	1700 °C	1600 °C	1500 °C
COMPOSIÇÃO	fração molar	fração molar	fração molar	fração molar
ESTADO PADRÃO	sólido puro	sólido puro	sólido puro	sólido puro

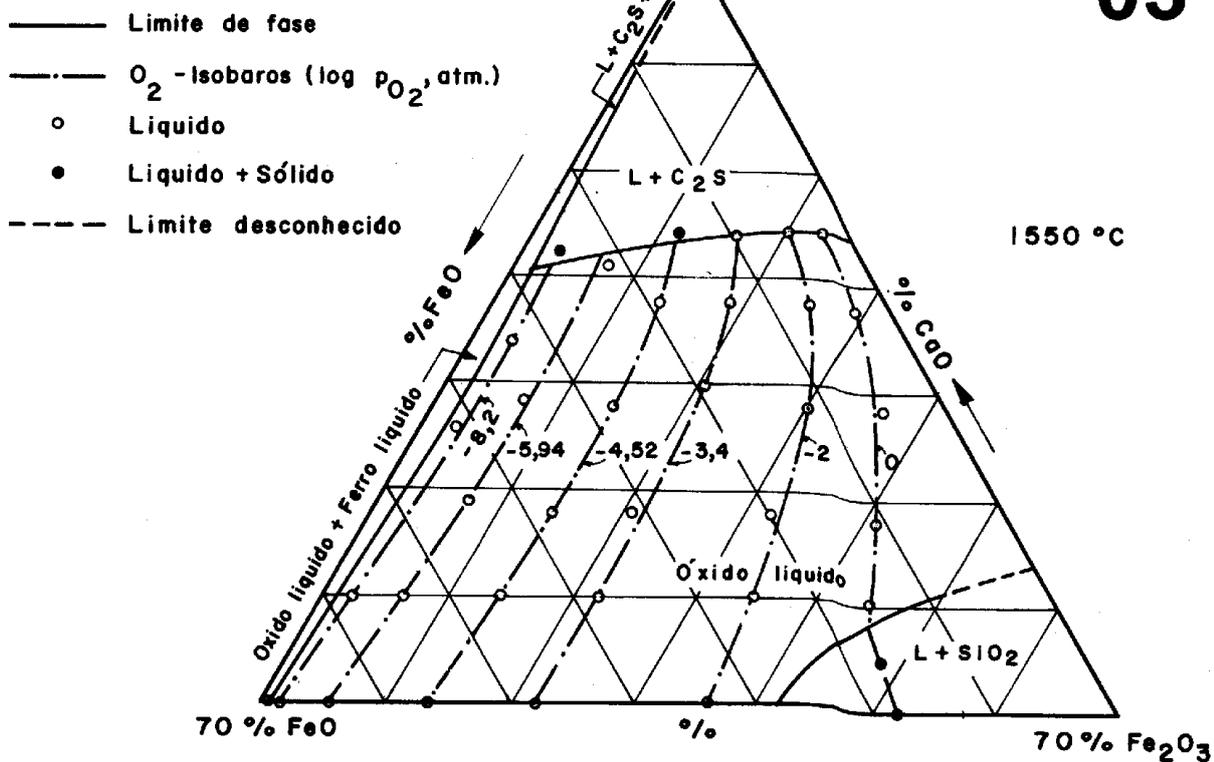
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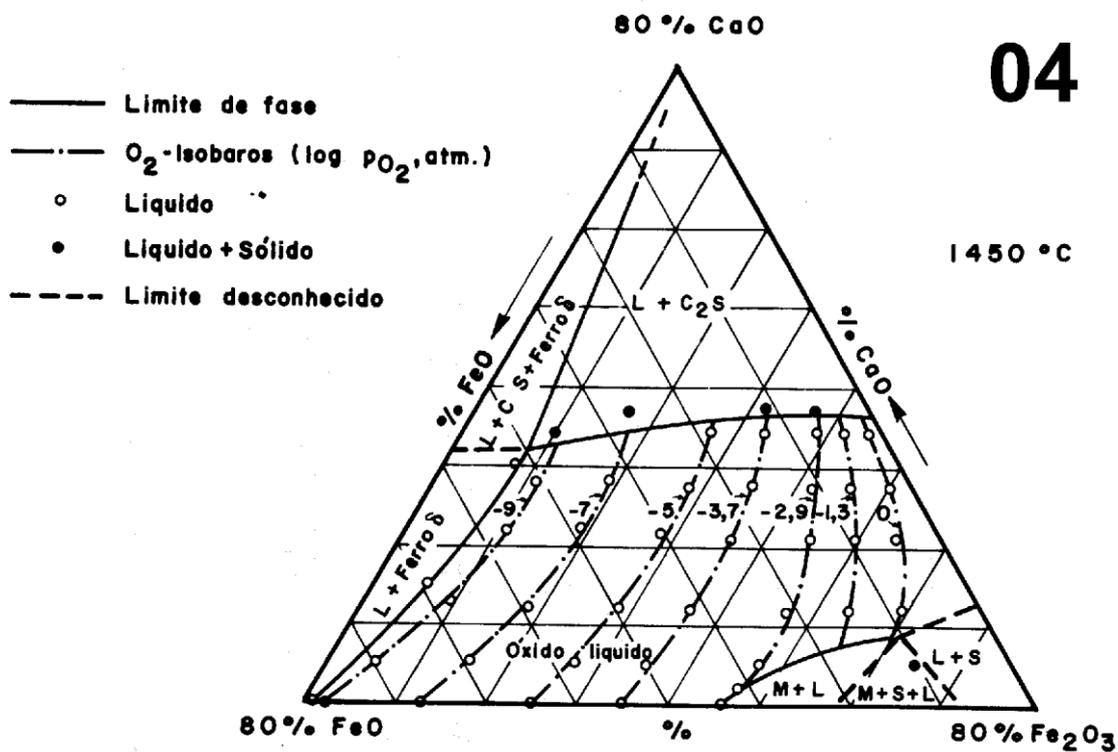
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03

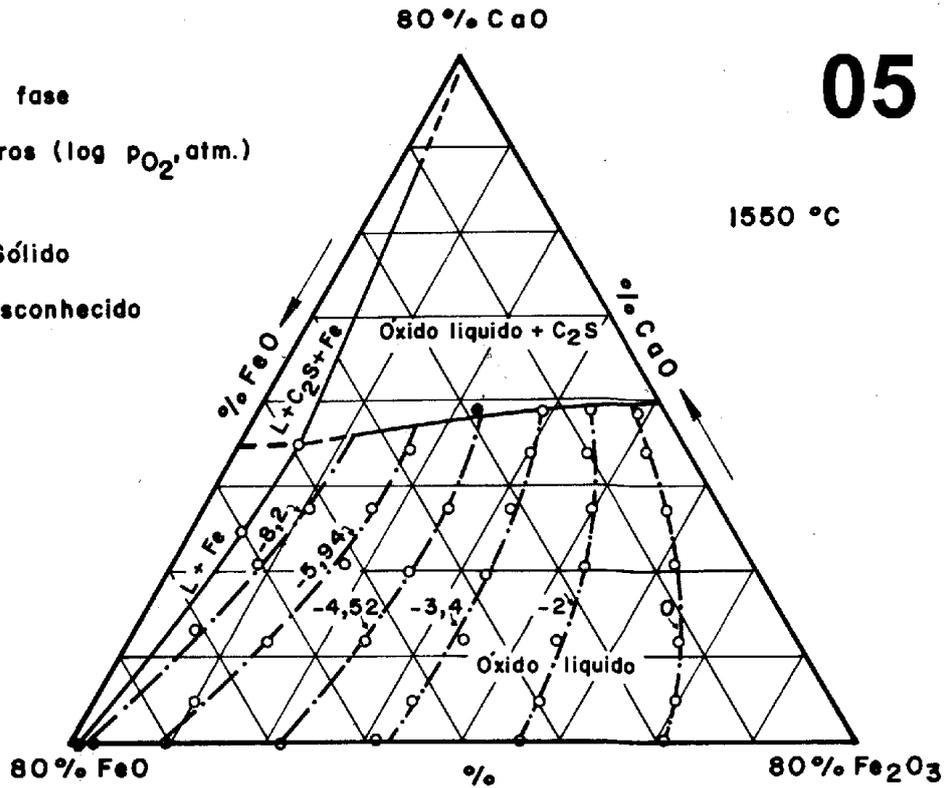


04



05

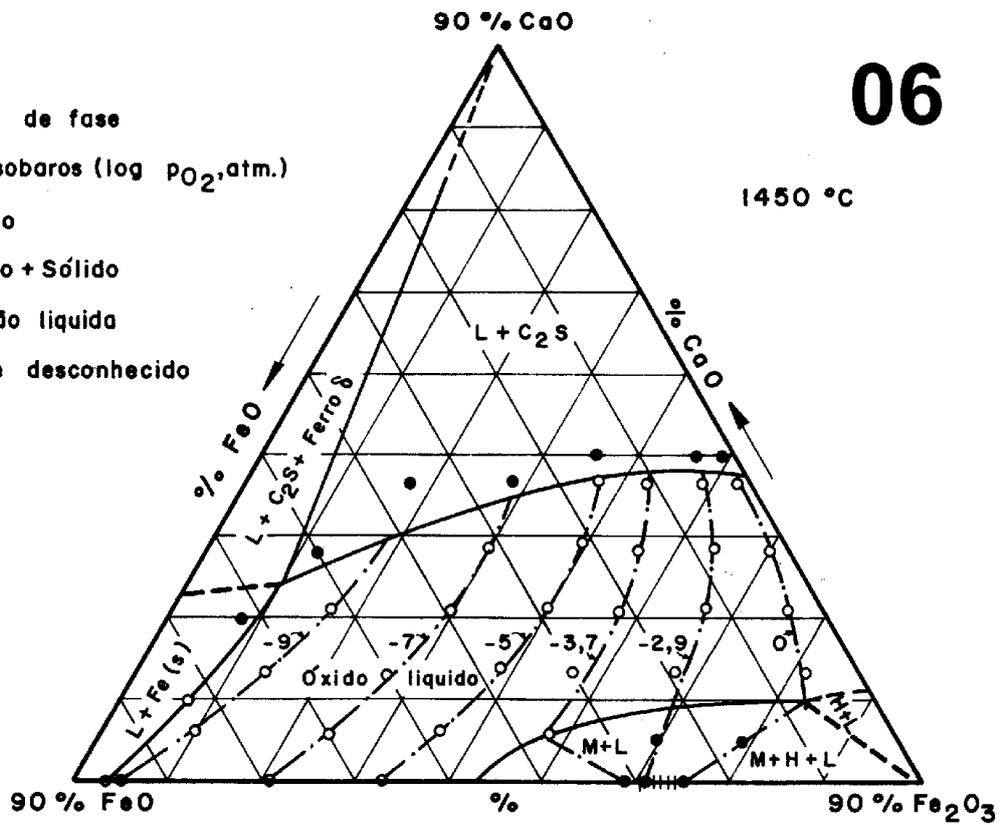
- Limite de fase
- - - O_2 - isobaros ($\log p_{O_2, atm.}$)
- Líquido
- Líquido + Sólido
- - - - Limite desconhecido



1550 °C

06

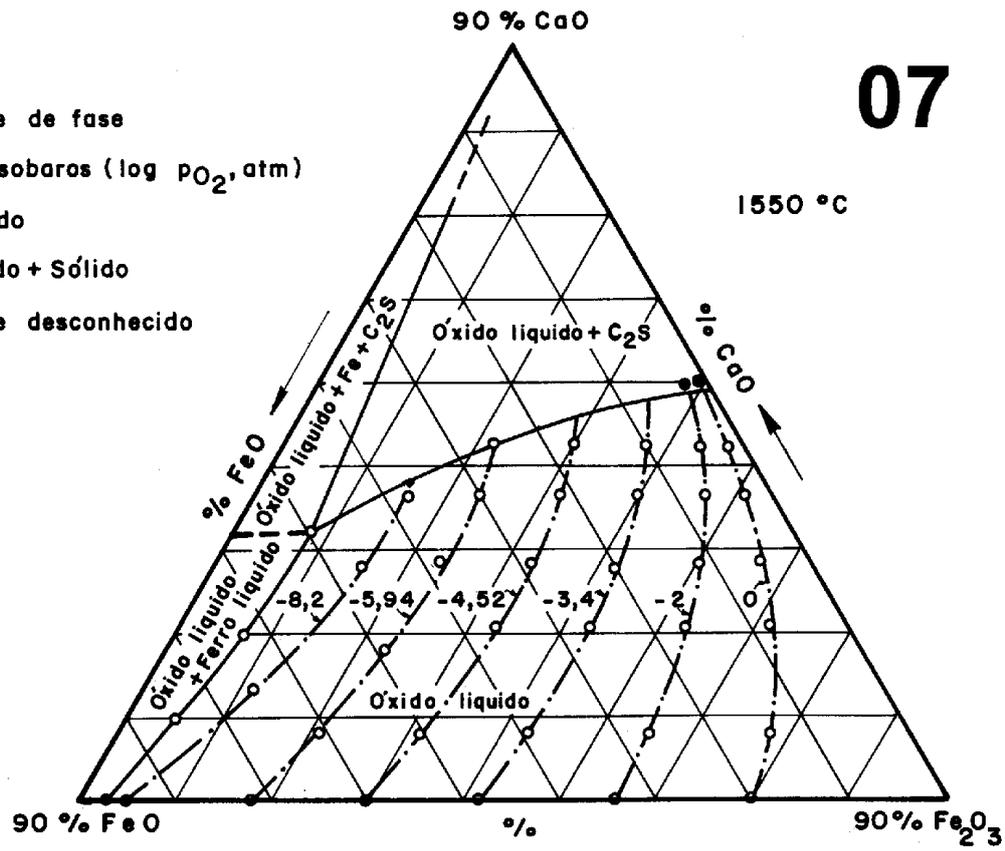
- Limite de fase
- - - O_2 - isobaros ($\log p_{O_2, atm.}$)
- Líquido
- Líquido + Sólido
- ||||| Solução líquida
- - - - Limite desconhecido



1450 °C

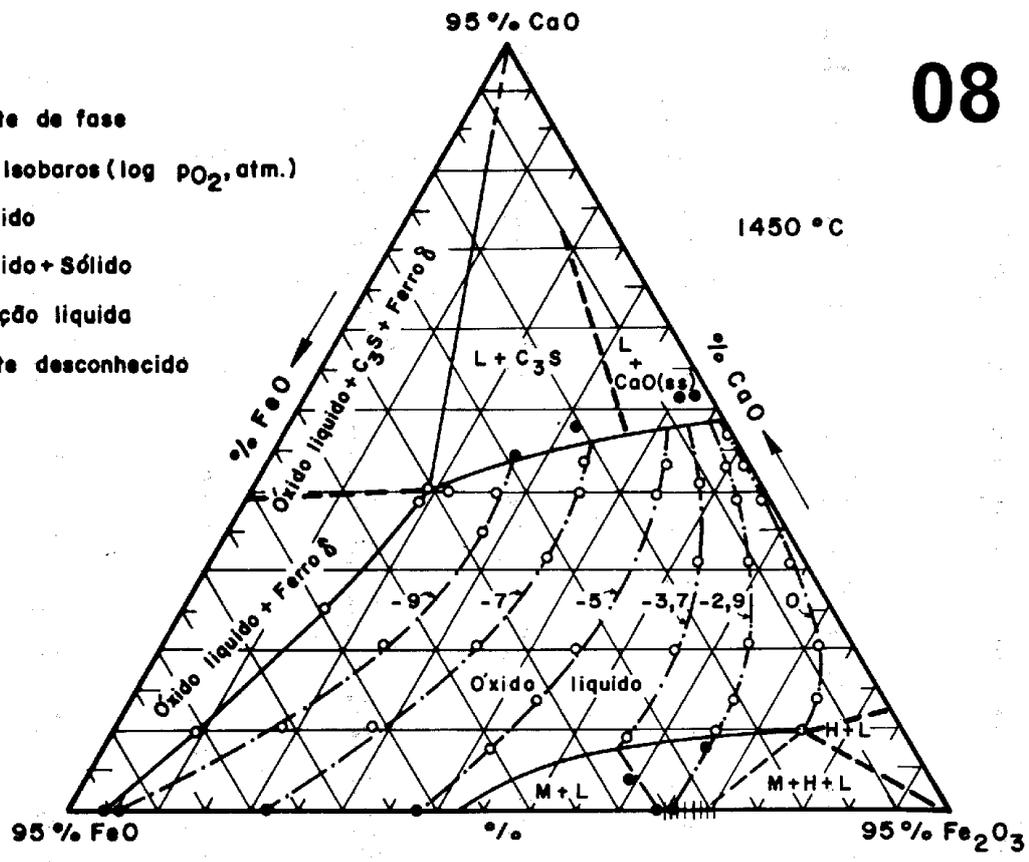
07

- Limite de fase
- · - · - O_2 - isobaros ($\log p_{O_2}, atm$)
- Líquido
- Líquido + Sólido
- - - - Limite desconhecido

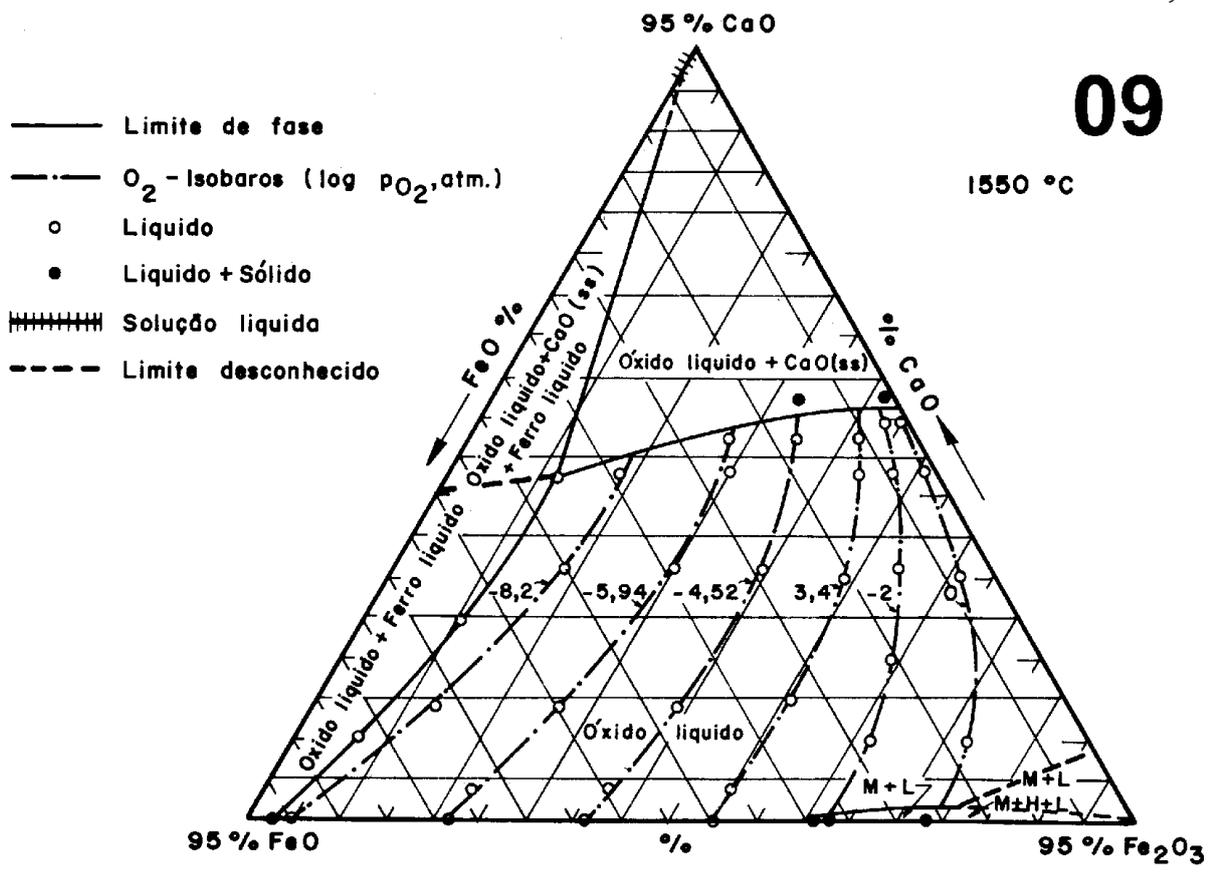


08

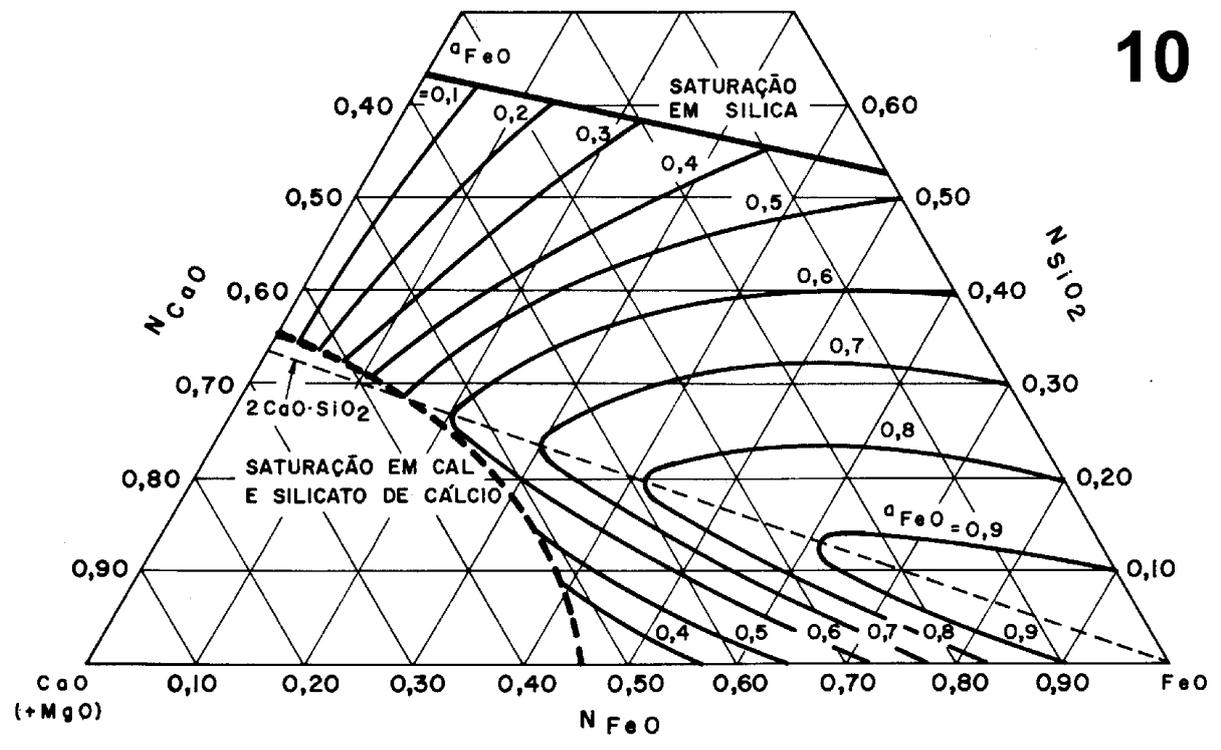
- Limite de fase
- · - · - O_2 - isobaros ($\log p_{O_2}, atm.$)
- Líquido
- Líquido + Sólido
- ||||| Solução líquida
- - - - Limite desconhecido



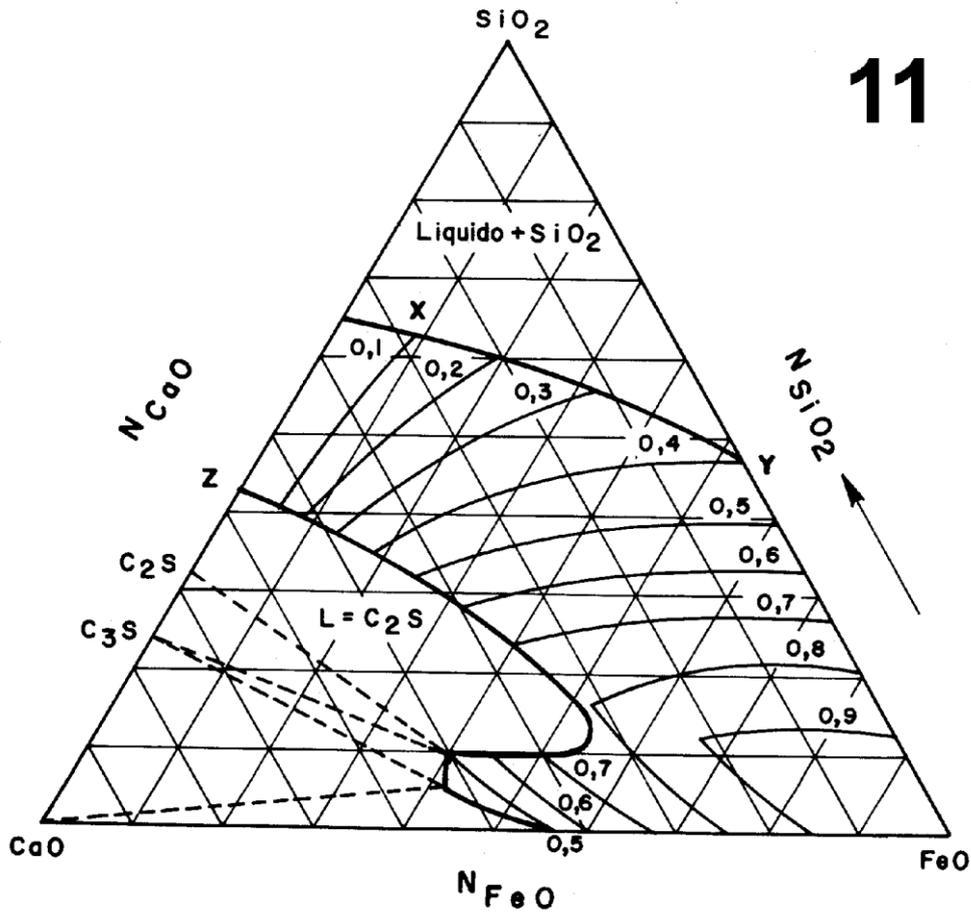
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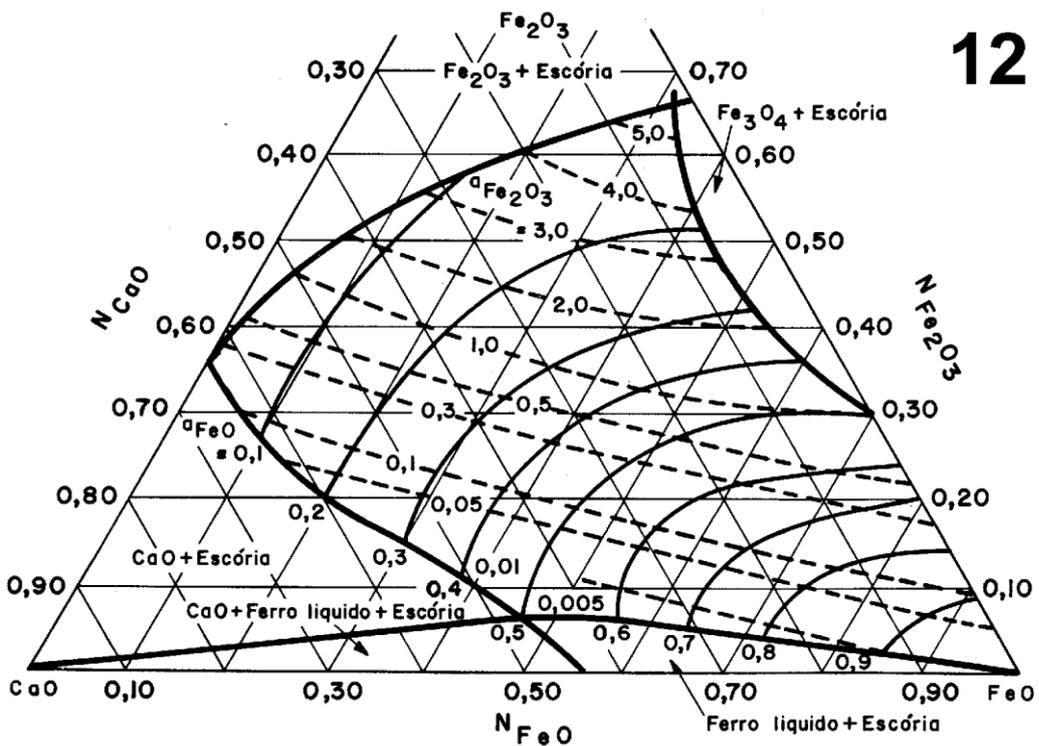
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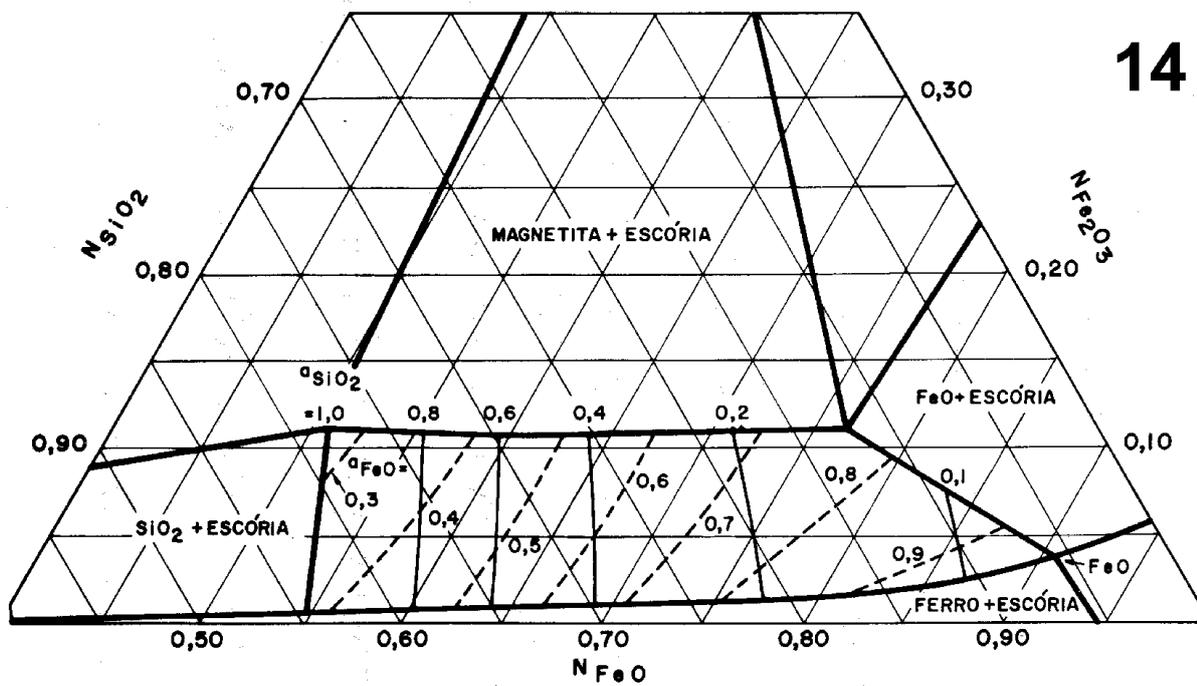
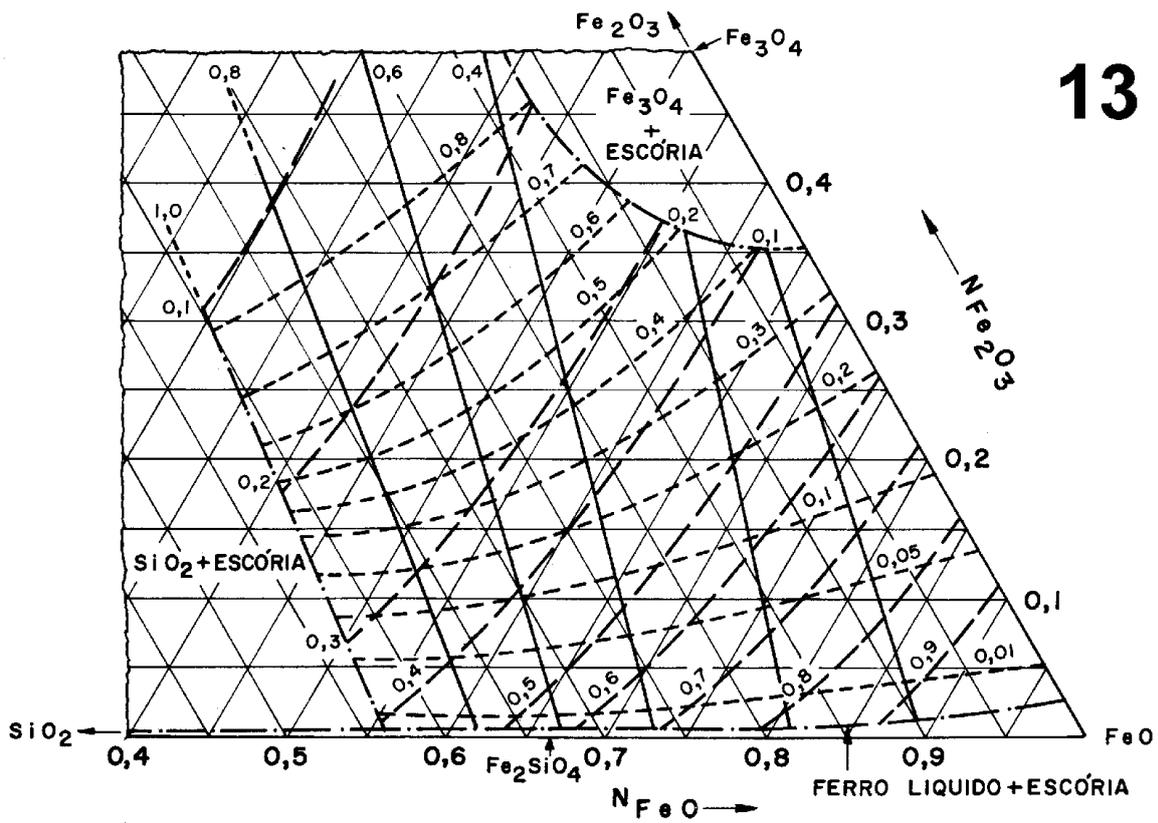


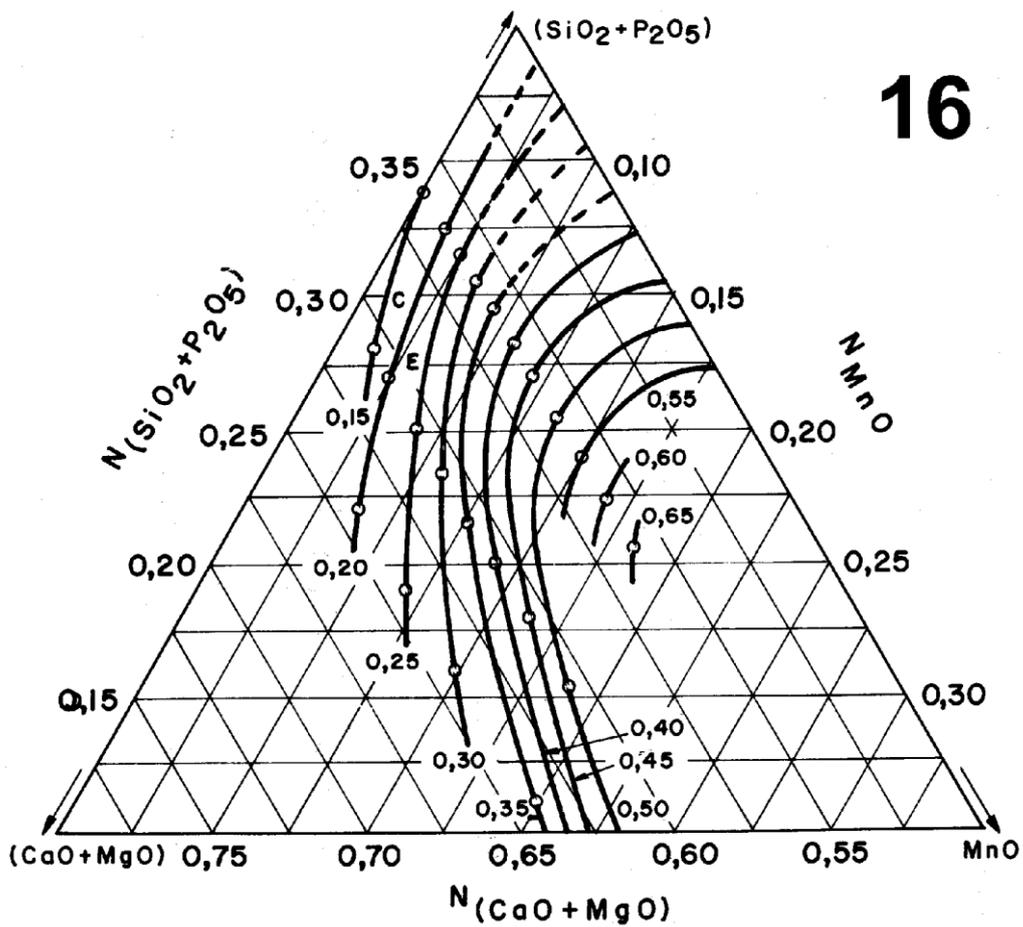
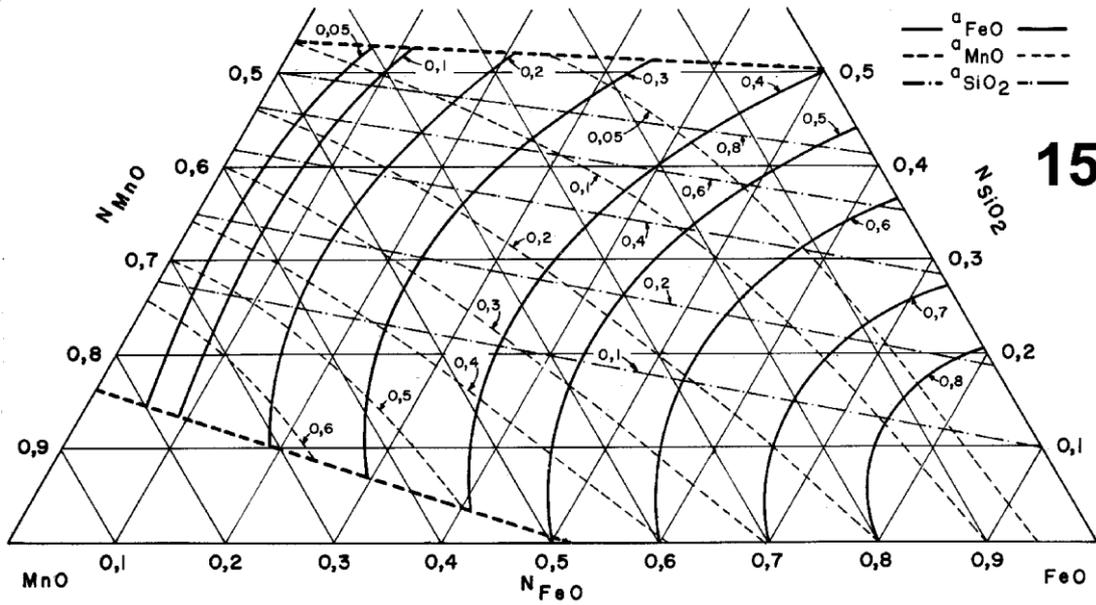
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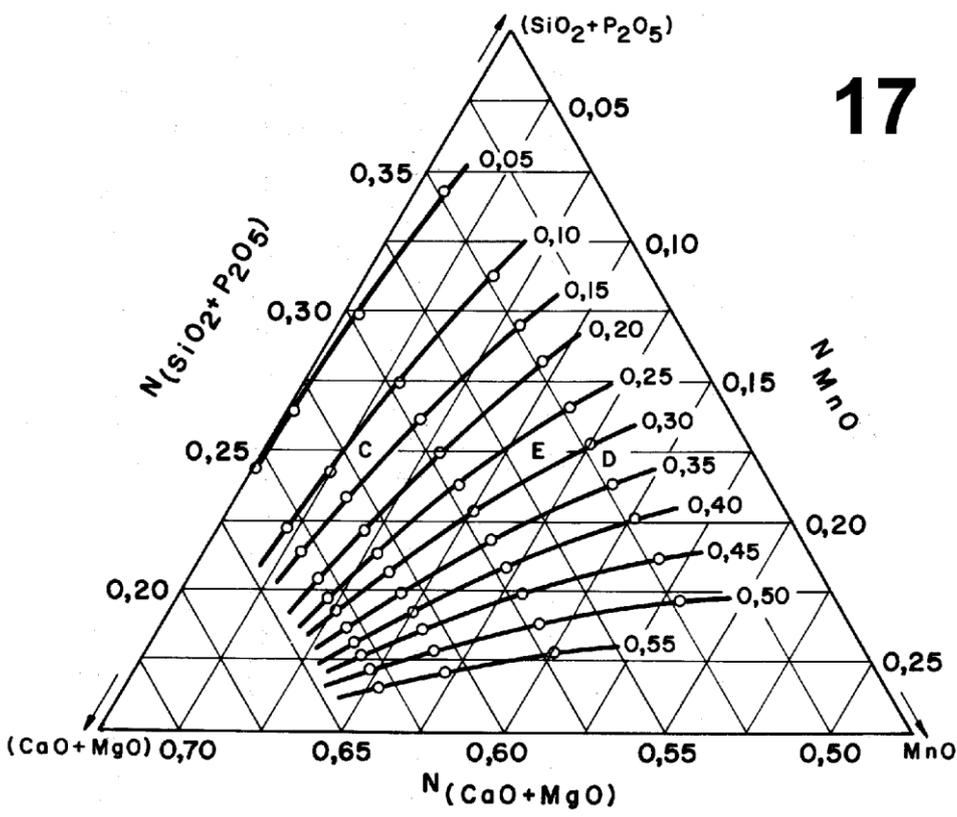
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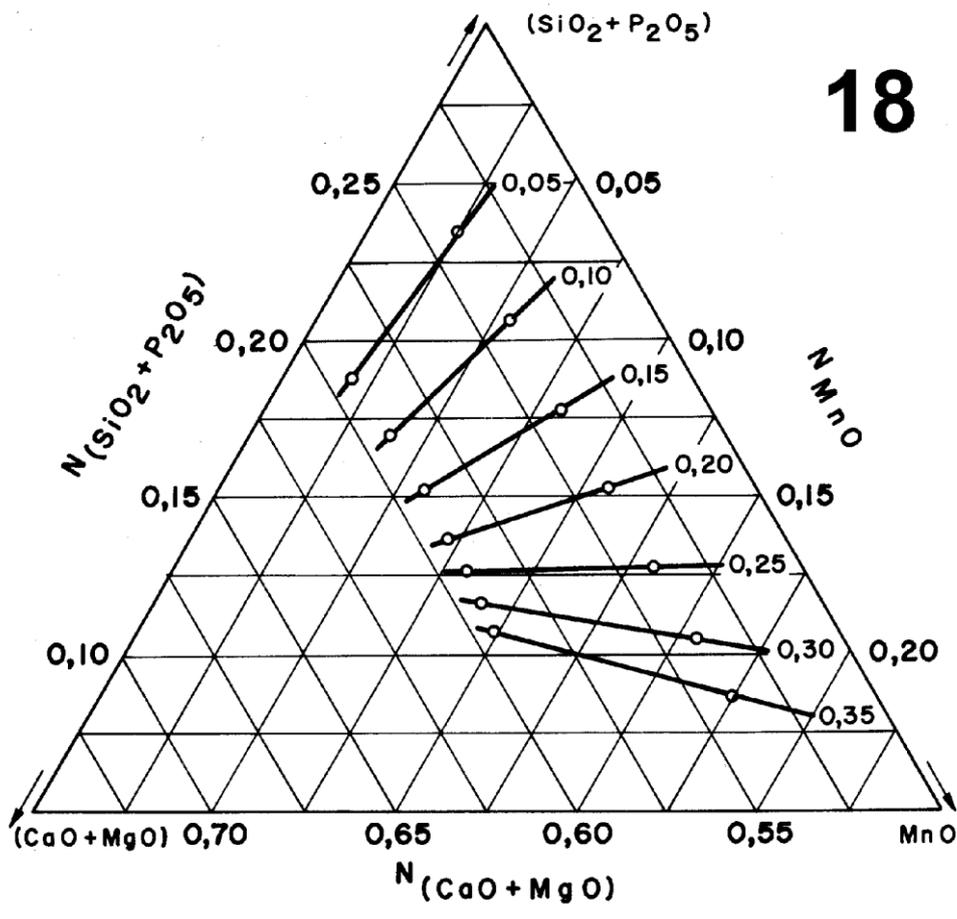


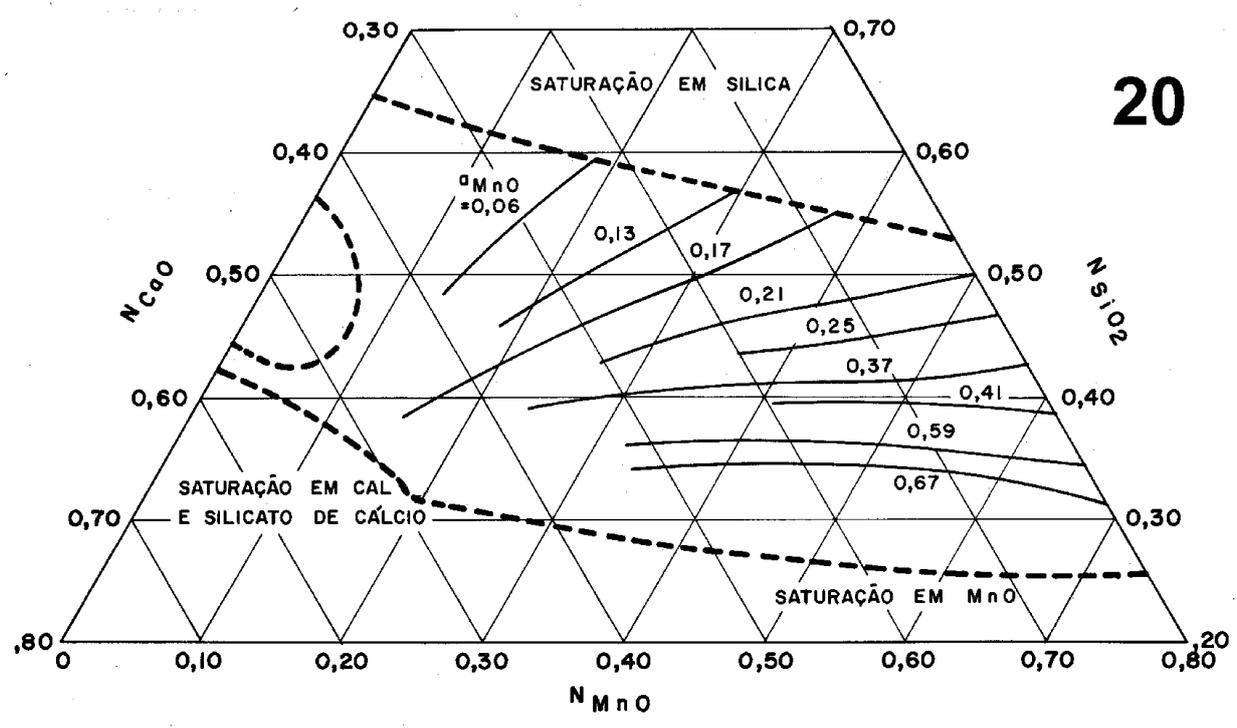
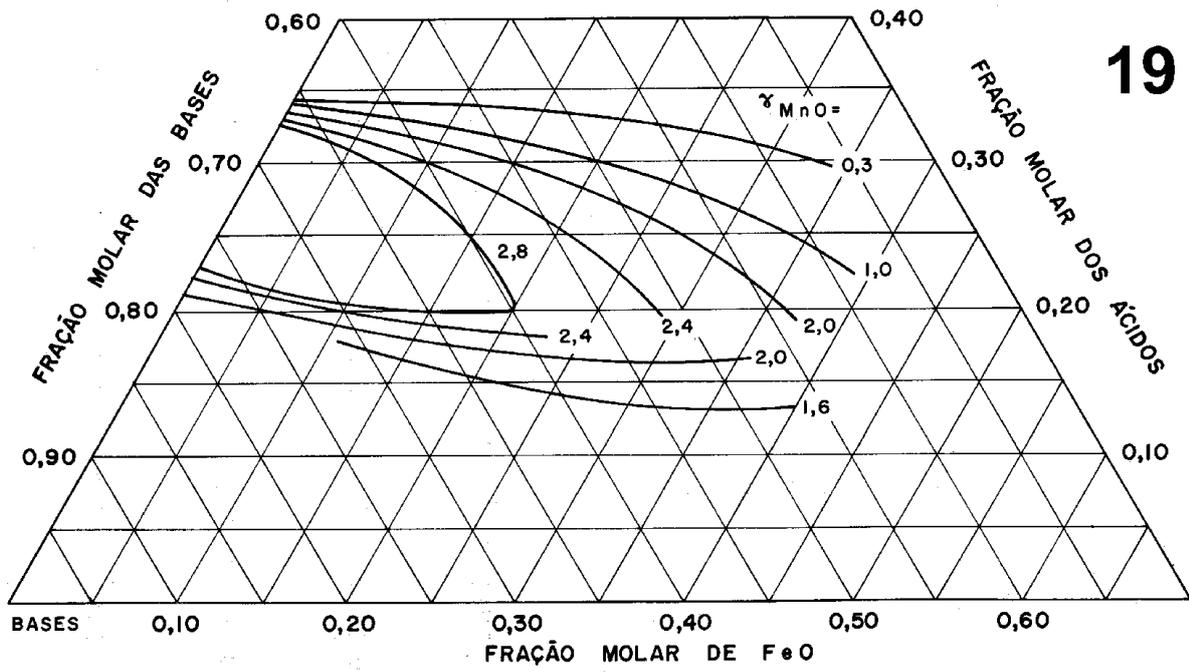


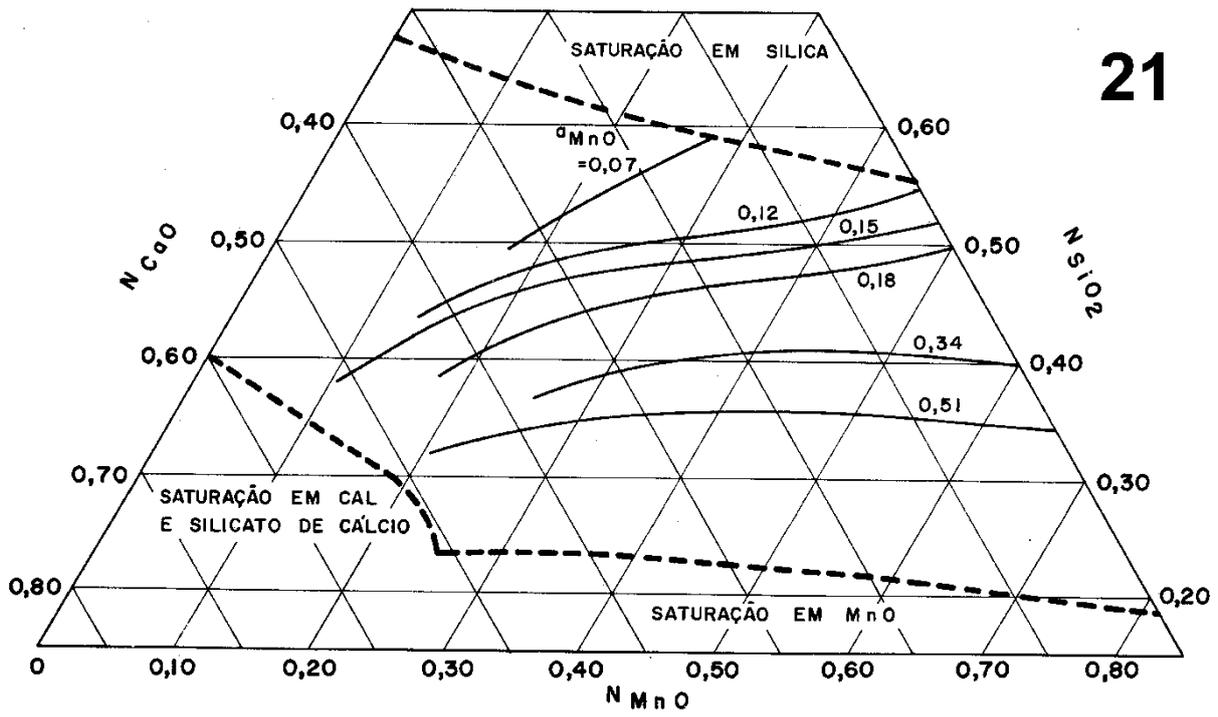
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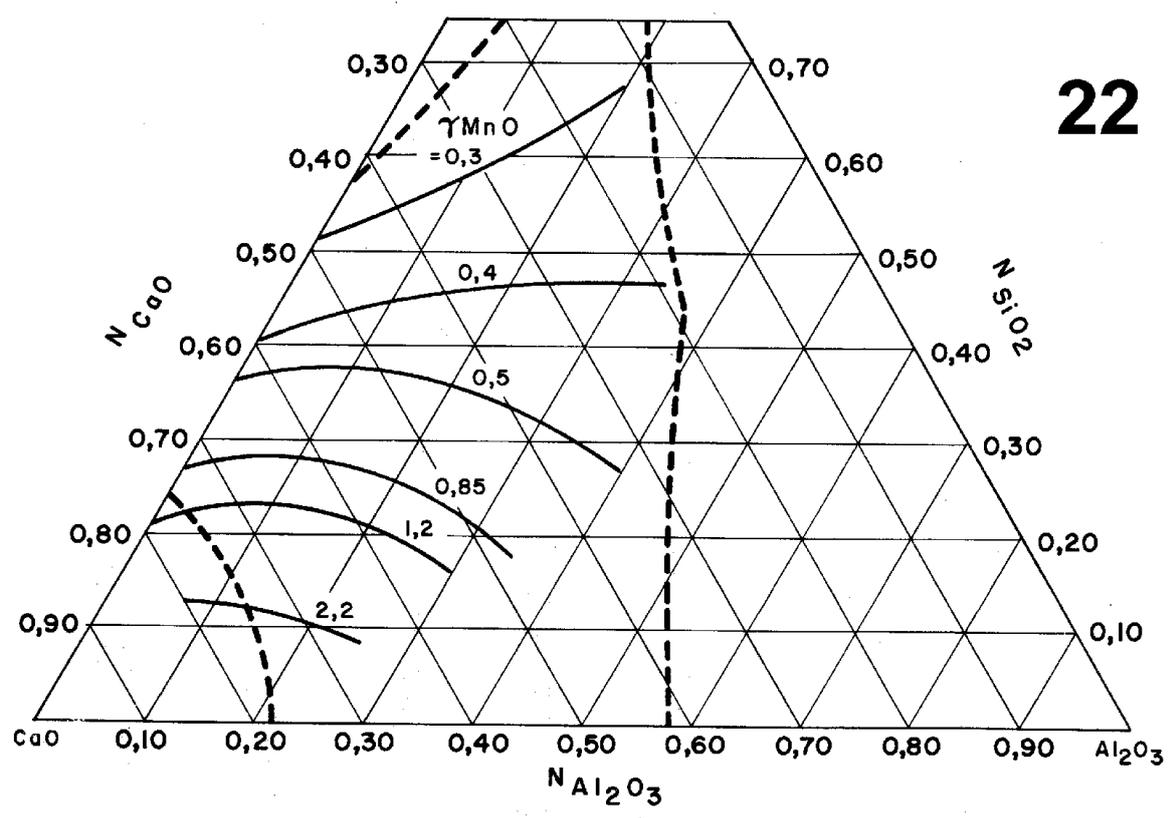
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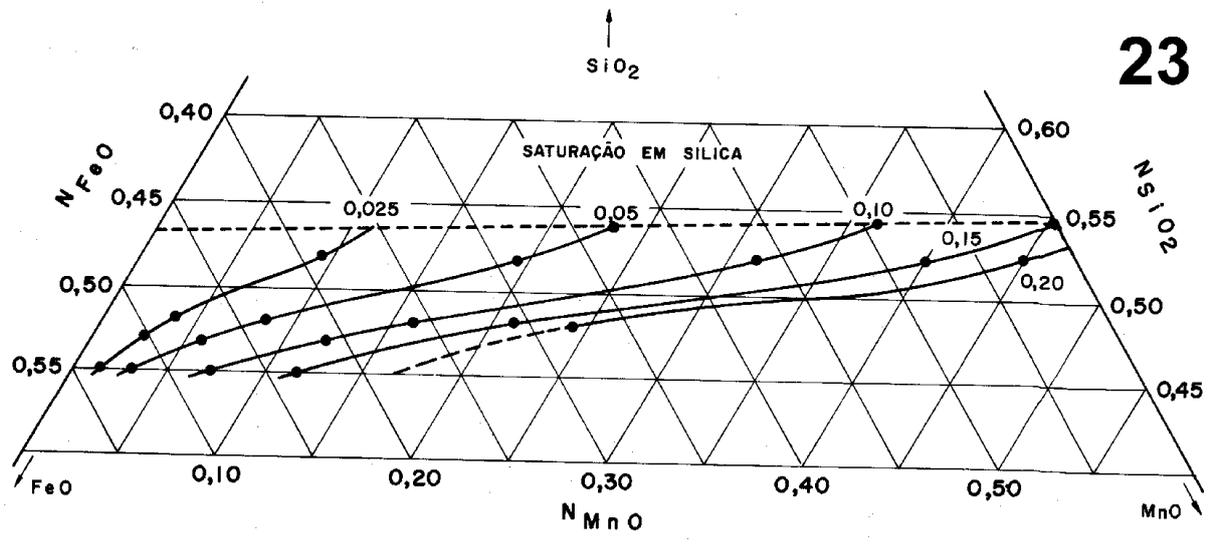




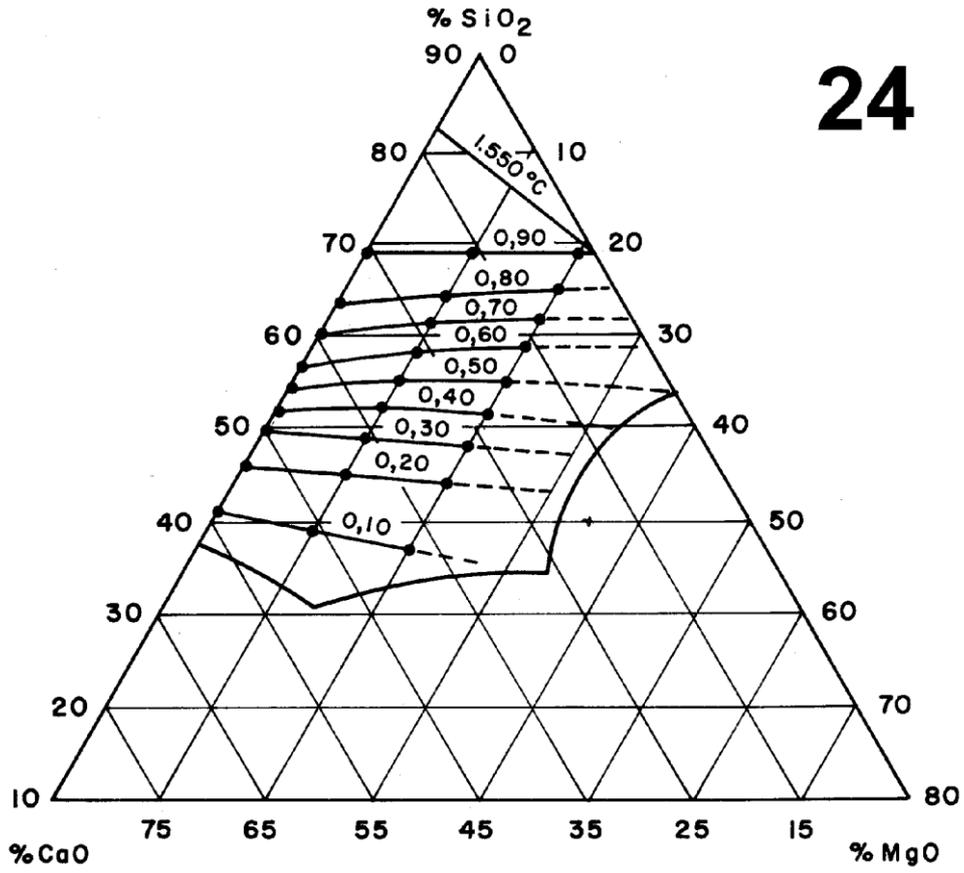
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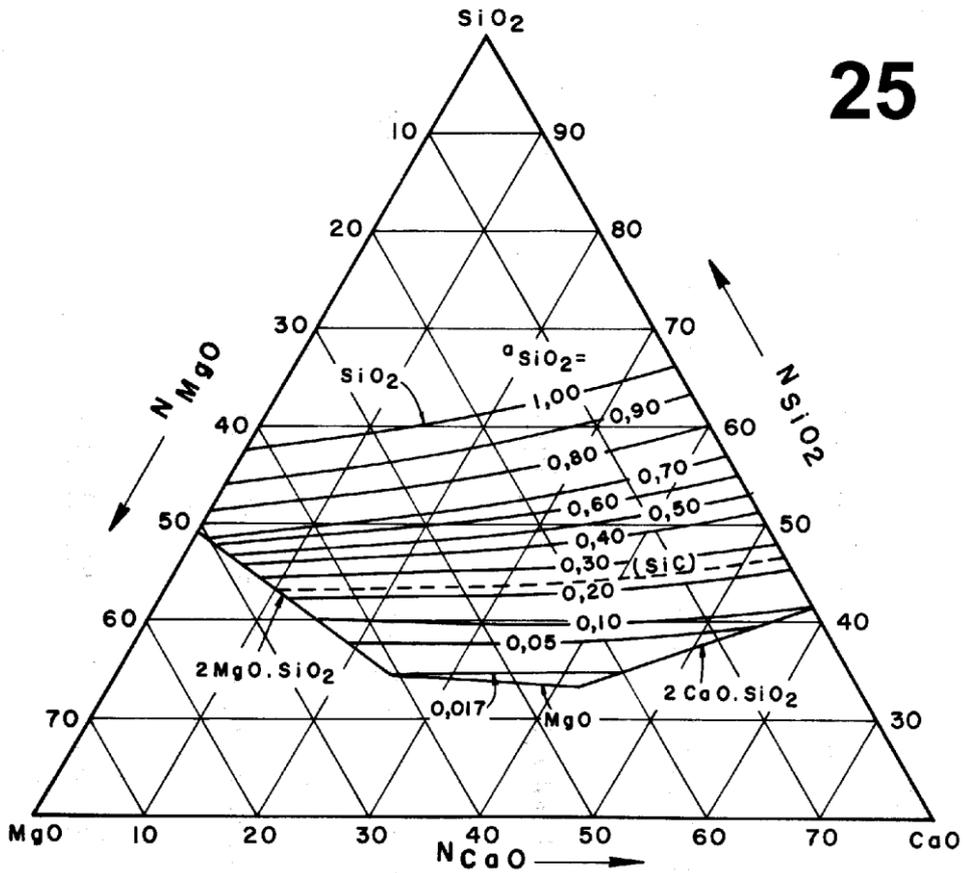
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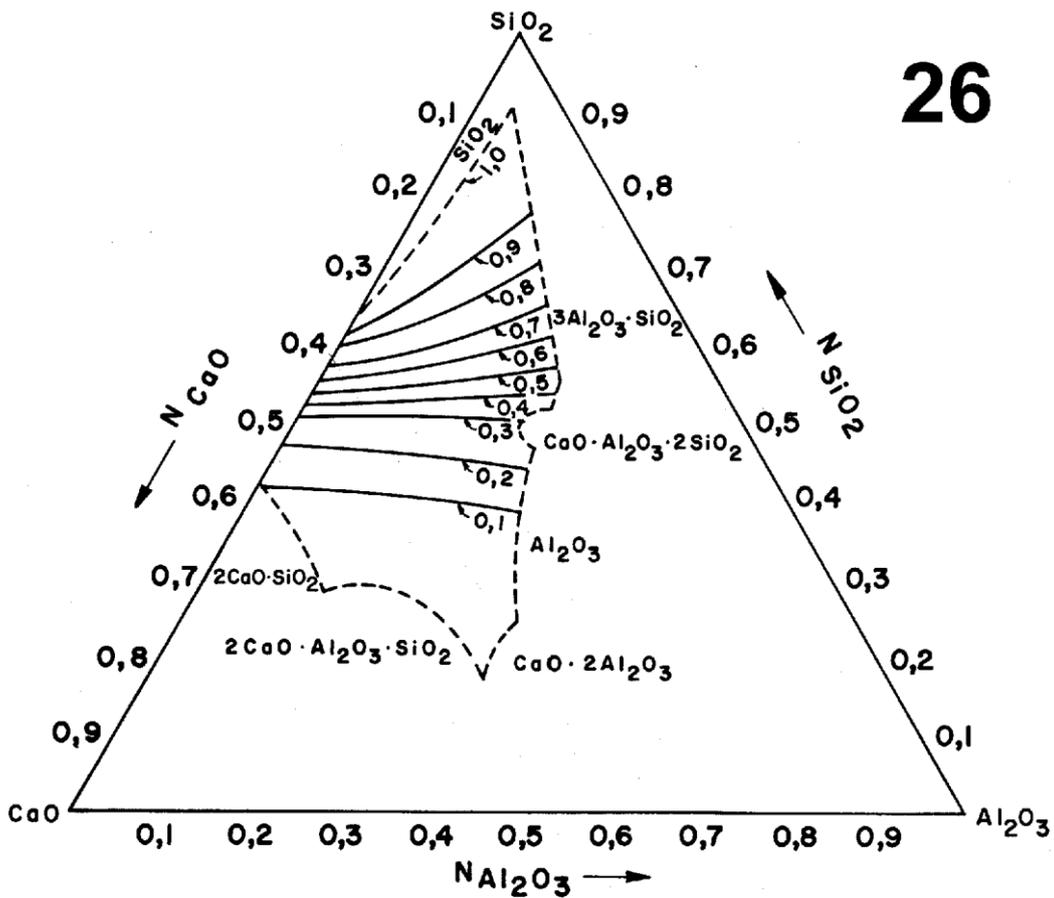
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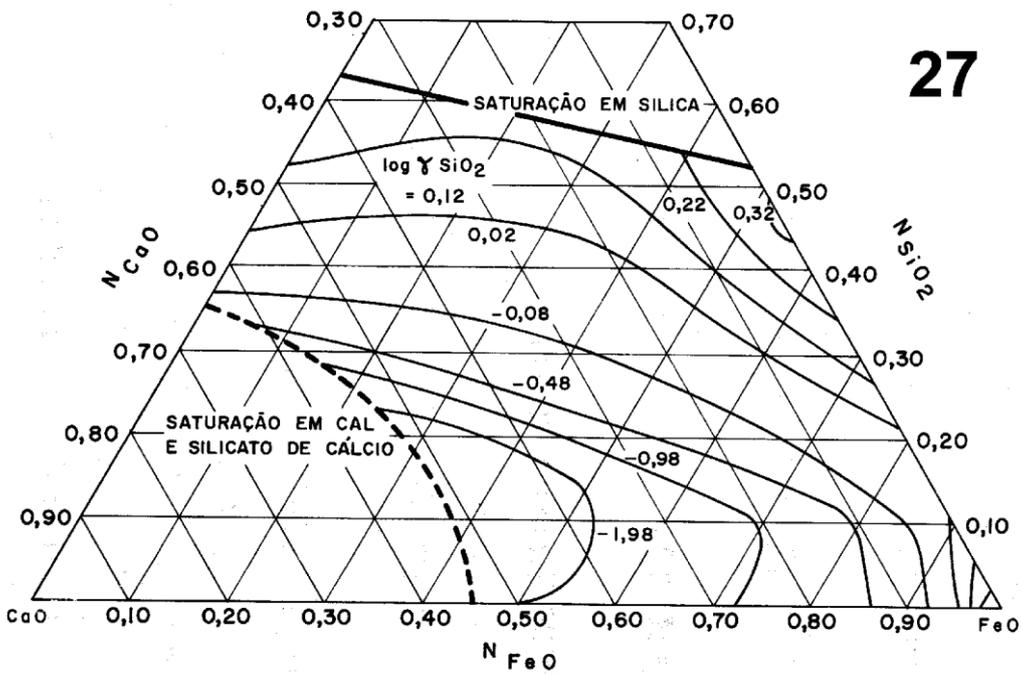
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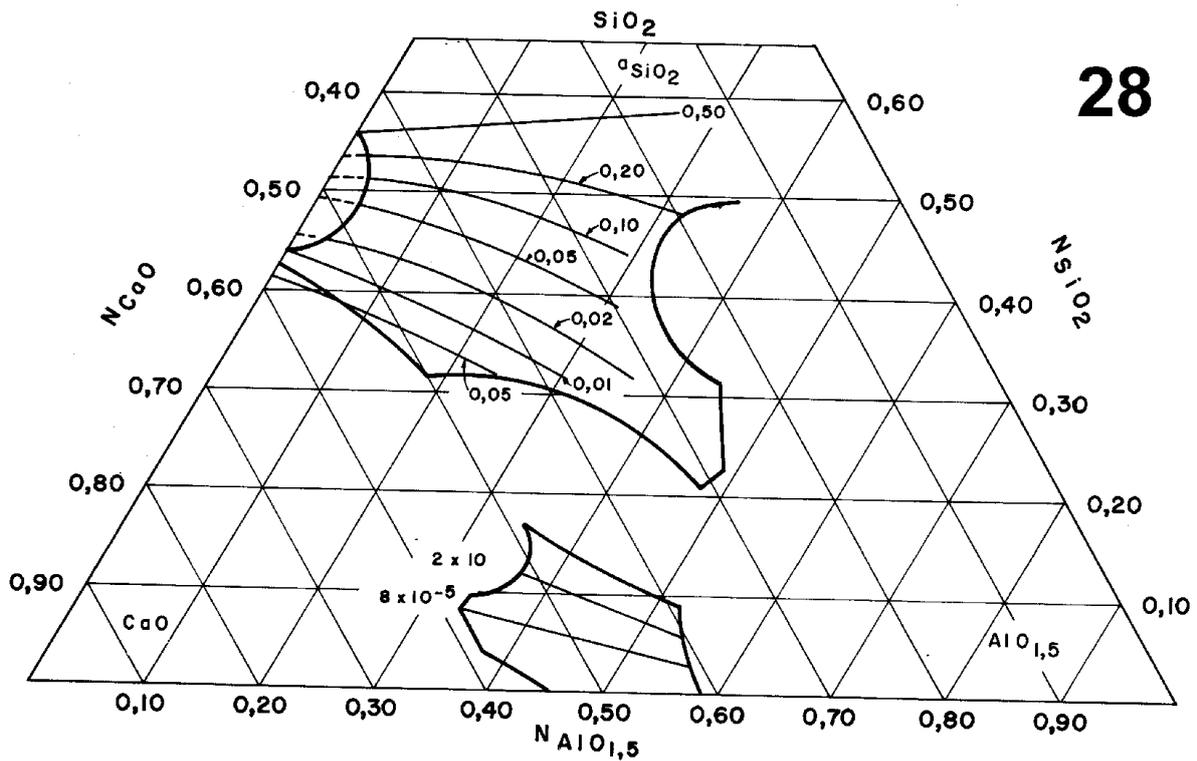
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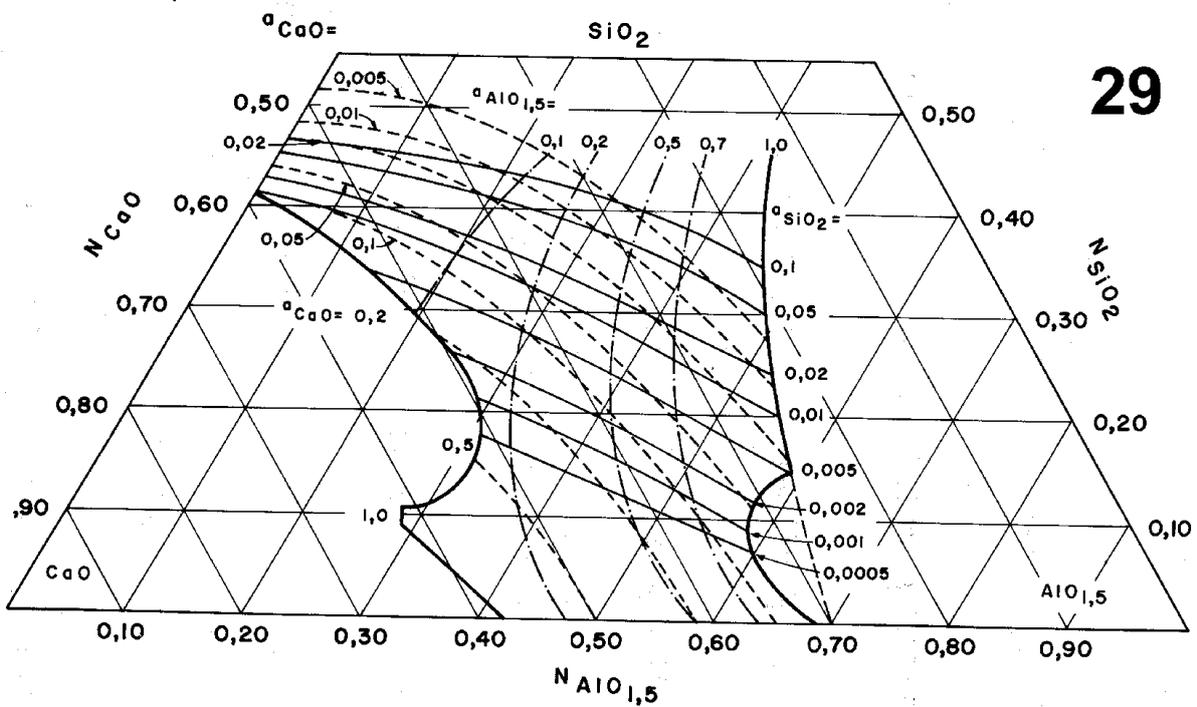
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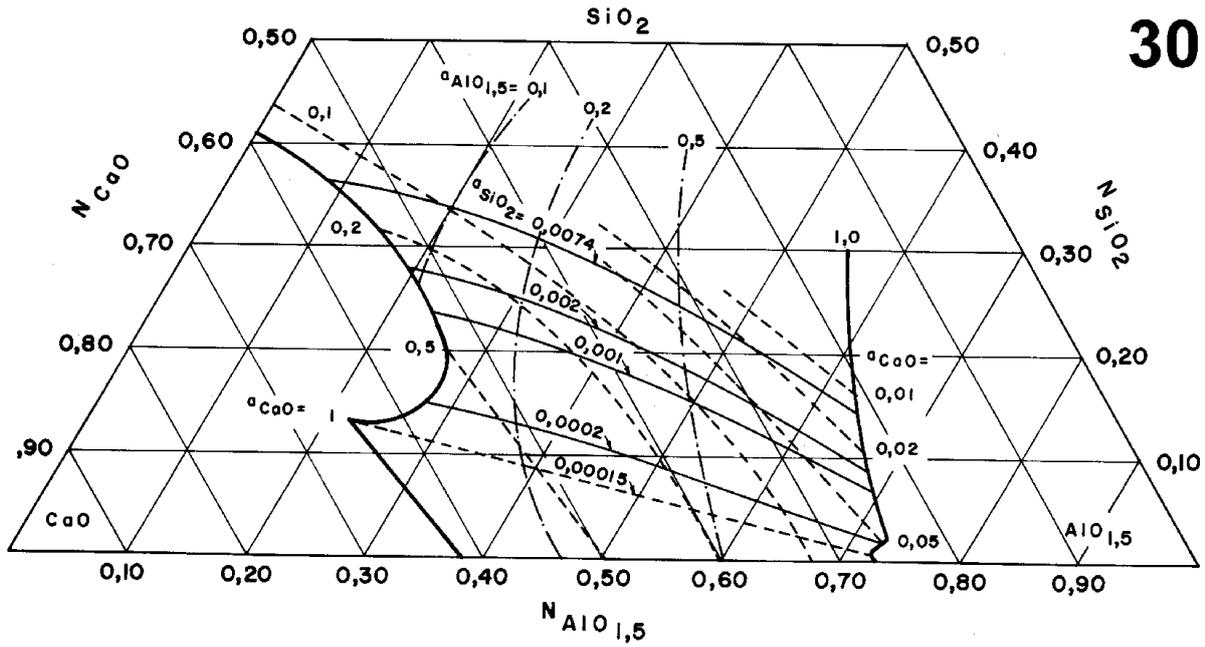
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