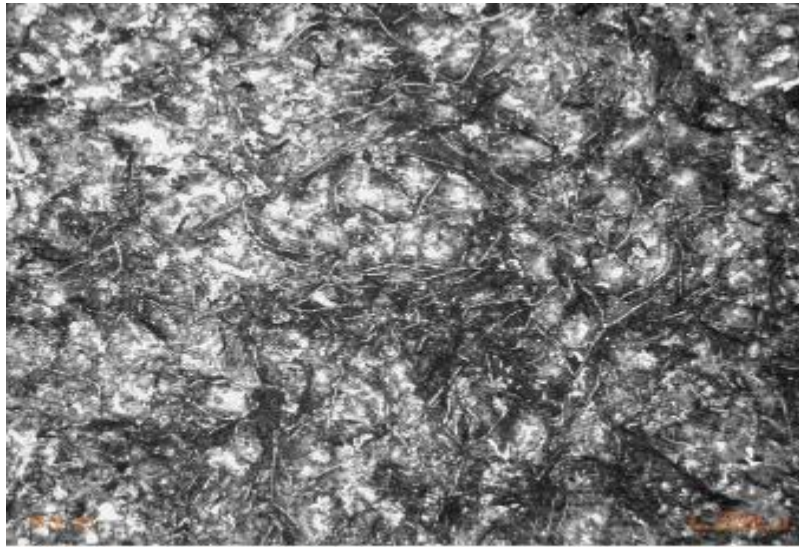
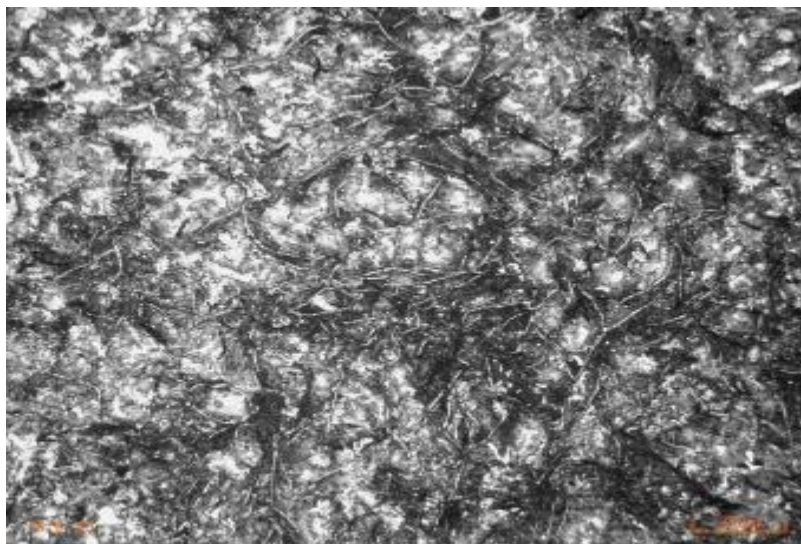


组织金相图谱大汇总

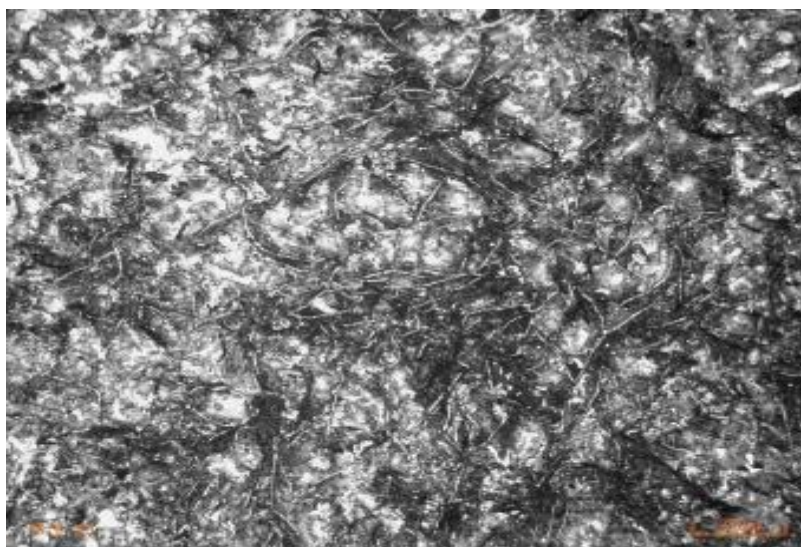
时间:2009-08-04 12:37 来源:中国热处理网 作者:www.cnrc1.com 点击: 次
Cr12MoV 热处理淬火以后共晶碳化物内裂纹 Cr12MoV 原材料莱氏体共晶碳化物
角状化 ; 碳化物拖尾及链状 GCr15 材料低倍组织检验 $\Phi 165\text{mm}$ 原材料 (图
1-4) 发现在切片横截面上近中心区域呈现



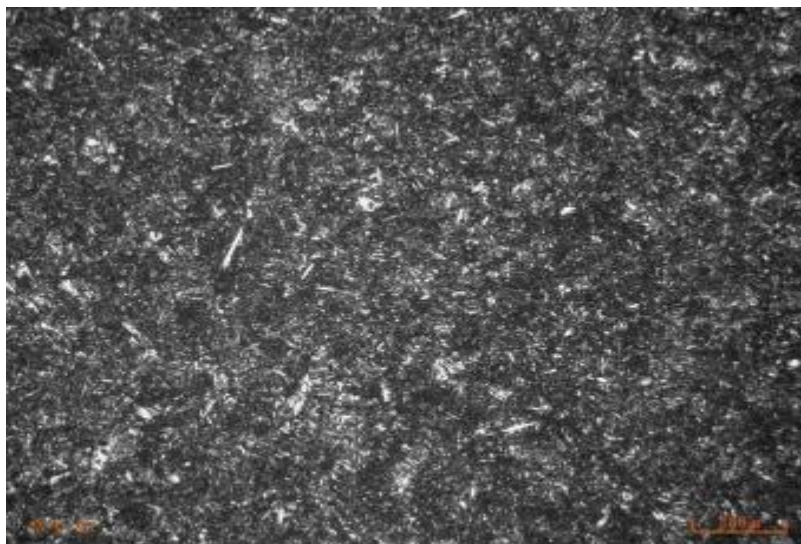
灰口铸铁 正火 片状珠光体+片状石墨+碳化物



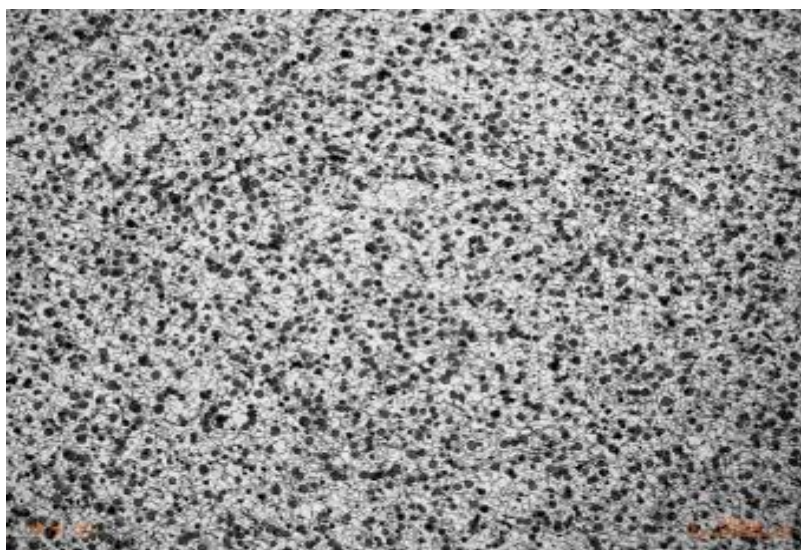
灰口铸铁 正火 片状珠光体+片状石墨+碳化物



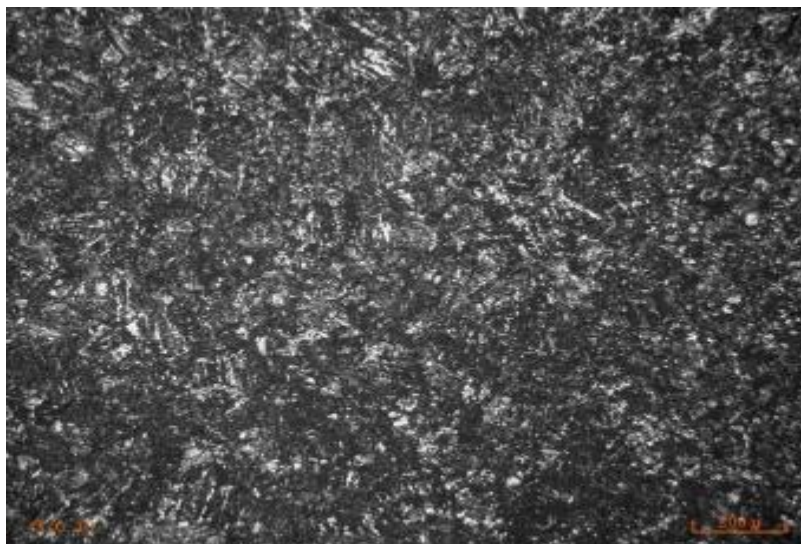
灰口铸铁 正火 片状珠光体+片状石墨+碳化物



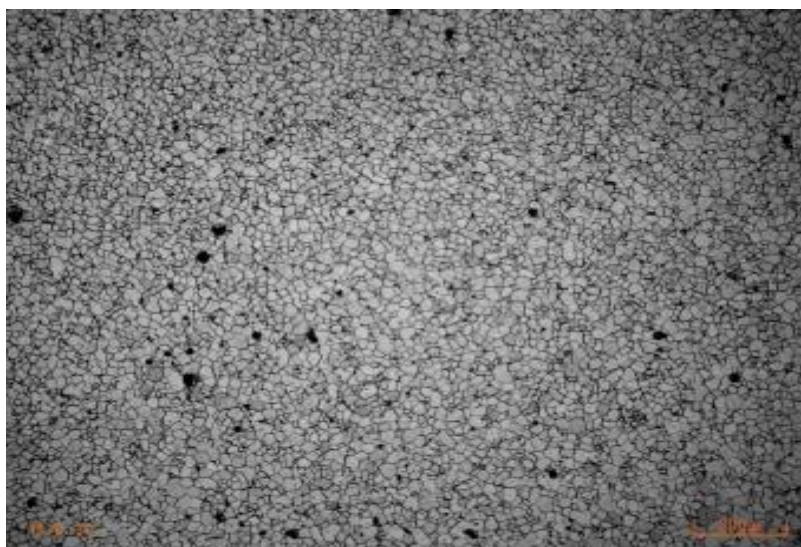
18CrMnNiMoA 淬火 板条马氏体



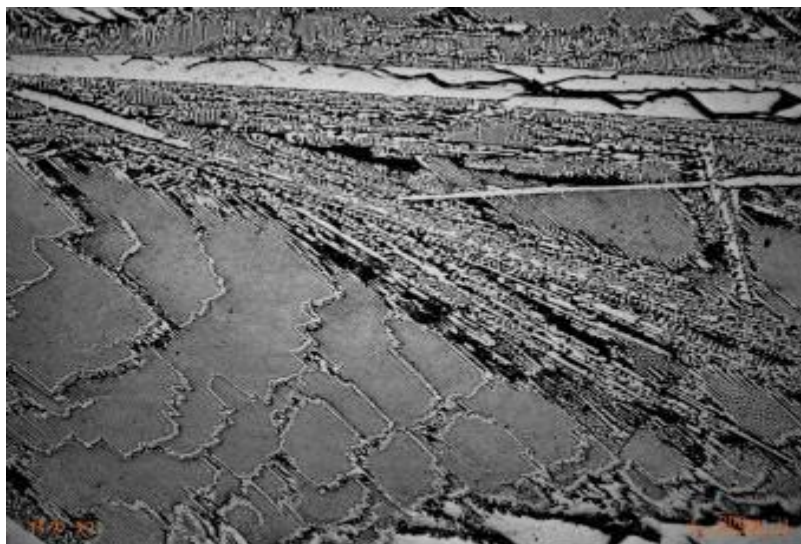
球墨铸铁 正火 铁素体+球状石墨



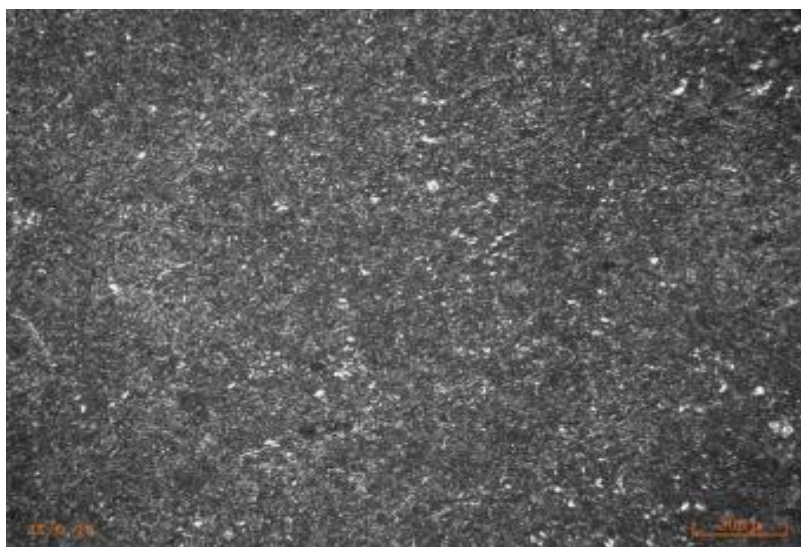
20Cr 淬火 板条马氏体



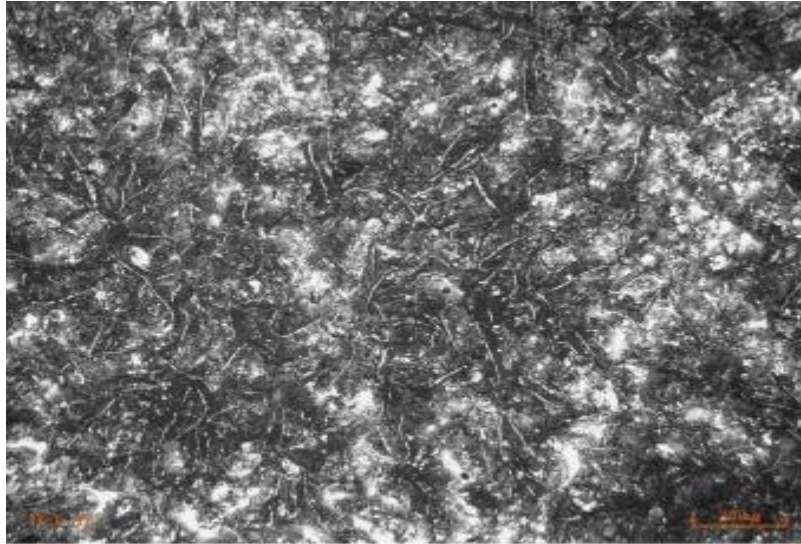
纯铁 退火 铁素体+三次碳化物



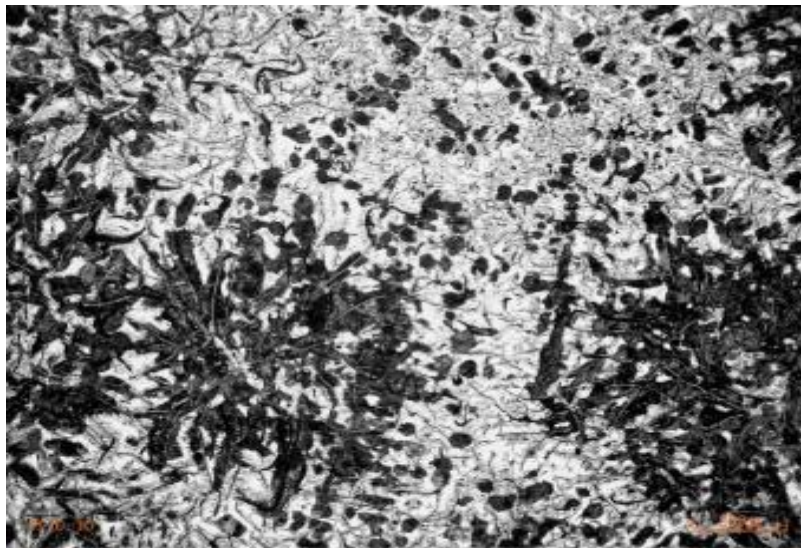
过共晶白口铸铁 铸态 莱氏体+一次碳化物



20CrNiMo 渗碳淬火 针状马氏体 (渗碳层)



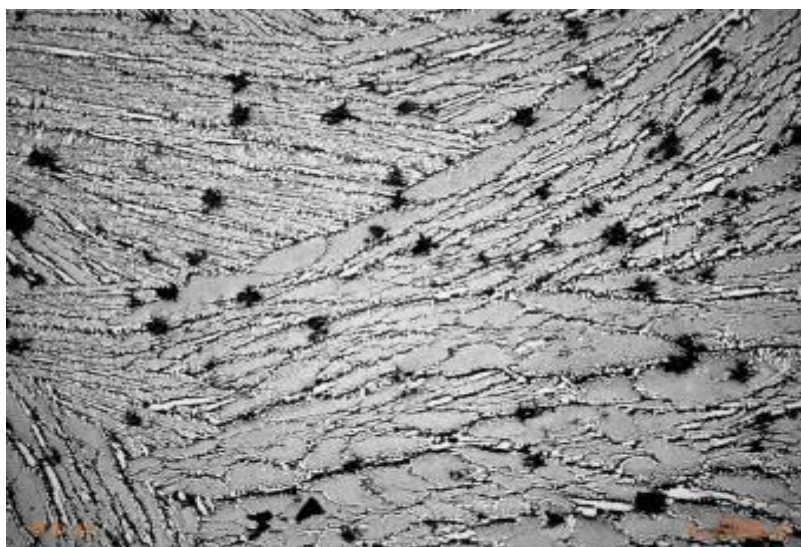
灰口铸铁 正火 片状珠光体+片状石墨+碳化物



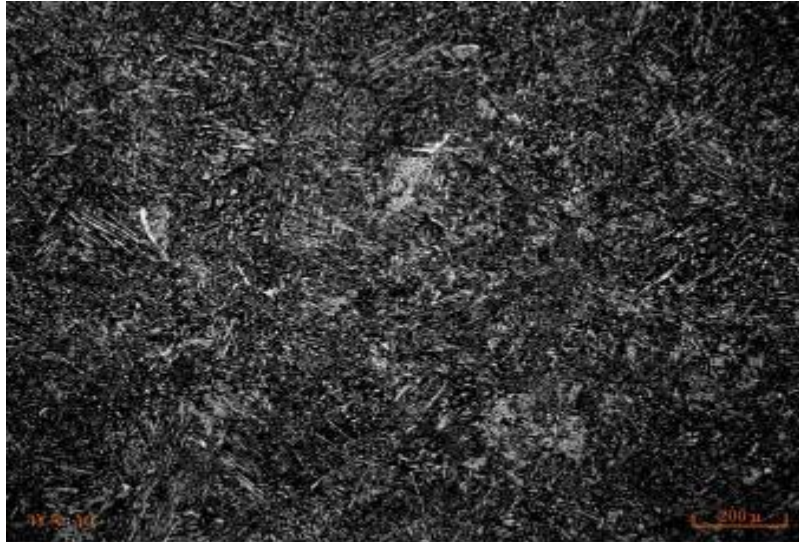
合金灰口铸铁 正火 片状石墨+贝氏体+马氏体+残余奥氏体+屈氏体



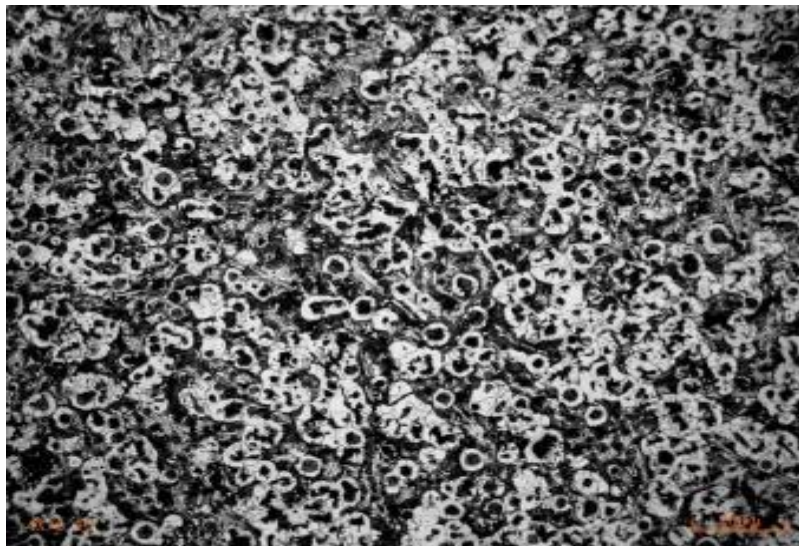
共晶白口铸铁 铸态 莱氏体



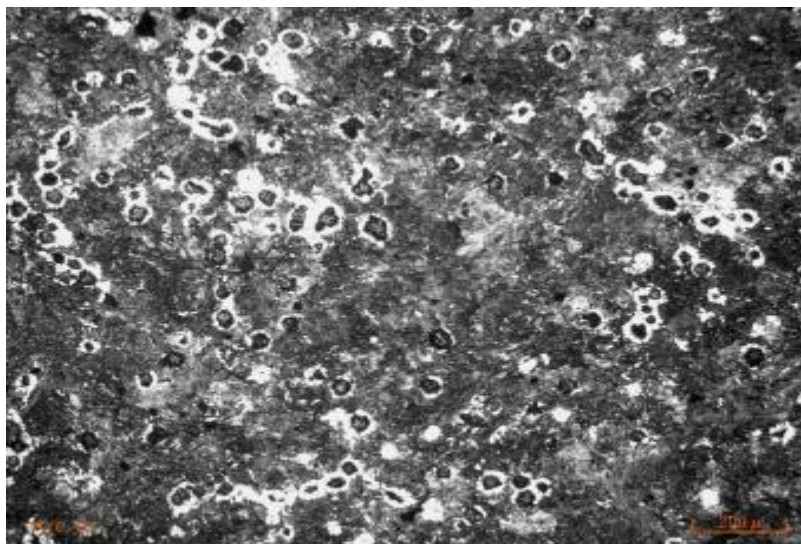
亚共晶白口铸铁 铸态 莱氏体+珠光体



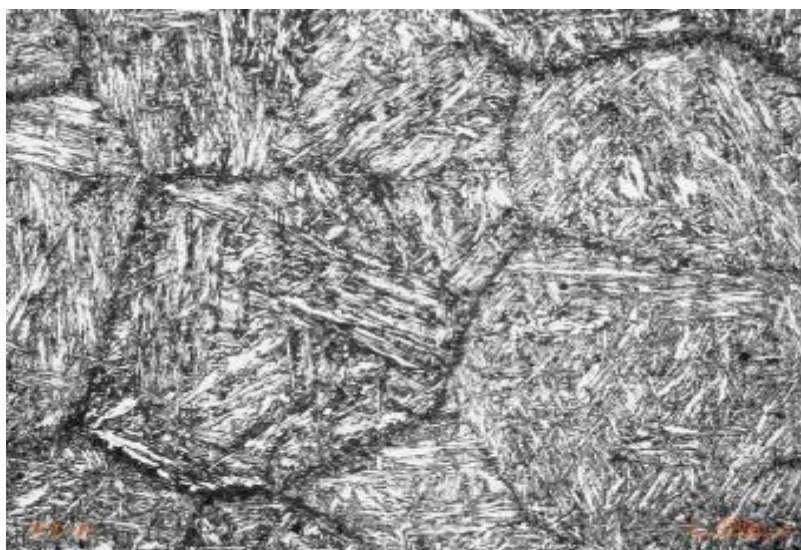
42CrMo 等温淬火 贝氏体



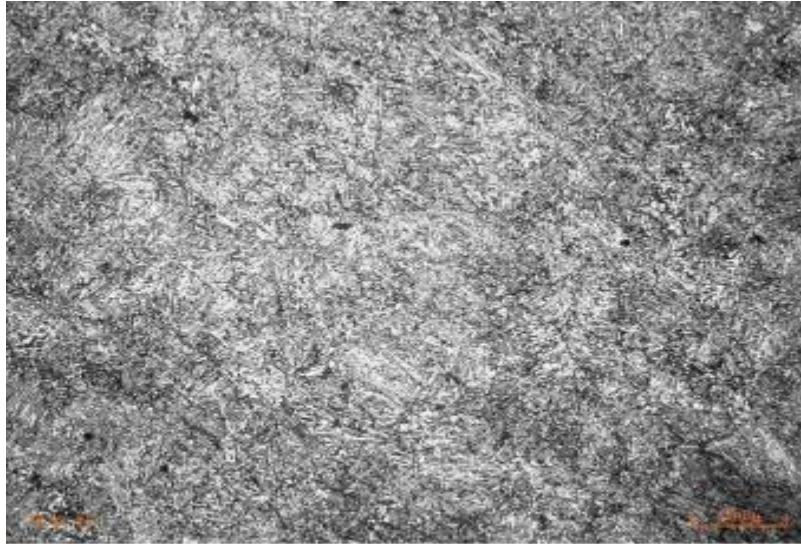
球墨铸铁 正火 珠光体+铁素体+球状石墨+碳化物



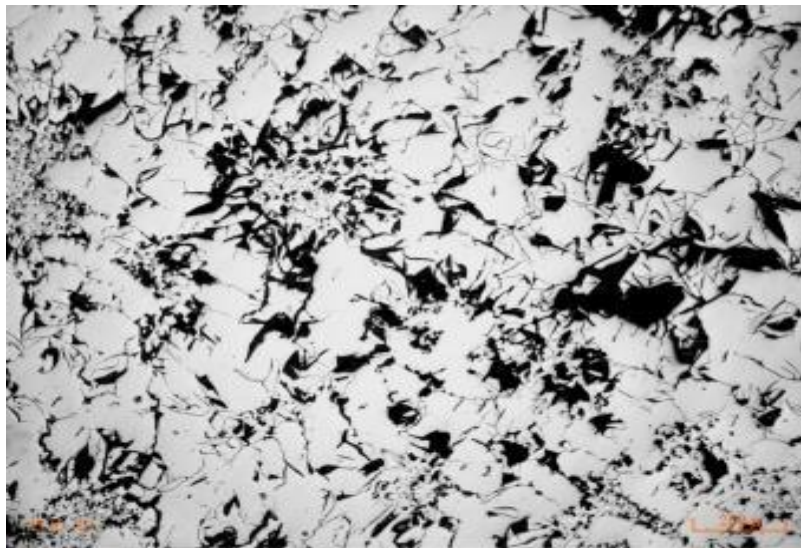
石墨钢 正火 珠光体+铁素体+石墨



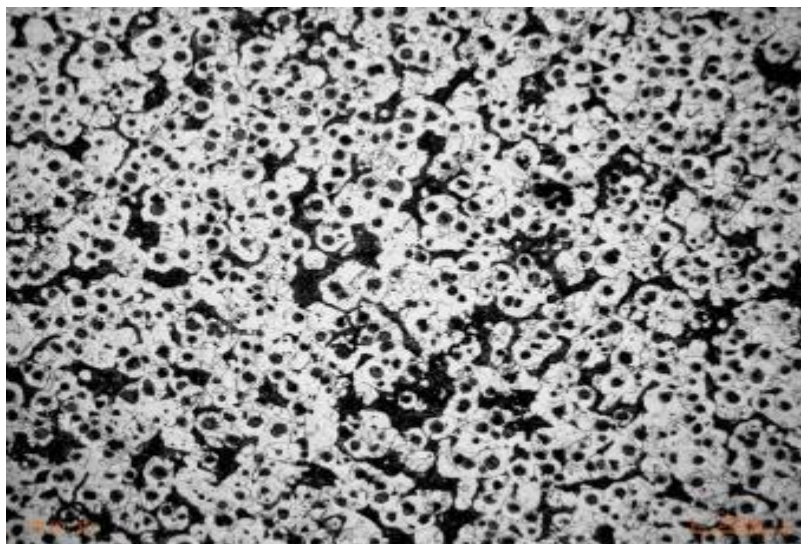
38CrMoAl 等温淬火 贝氏体



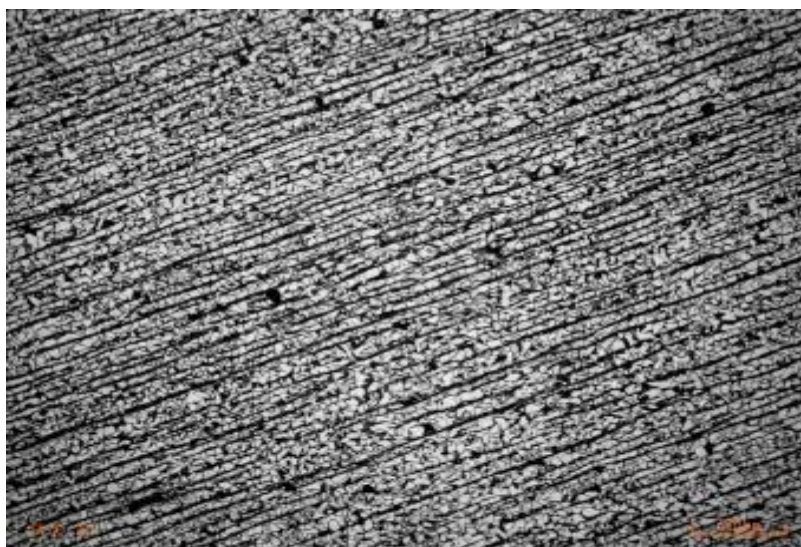
38CrMoAl 等温淬火 贝氏体



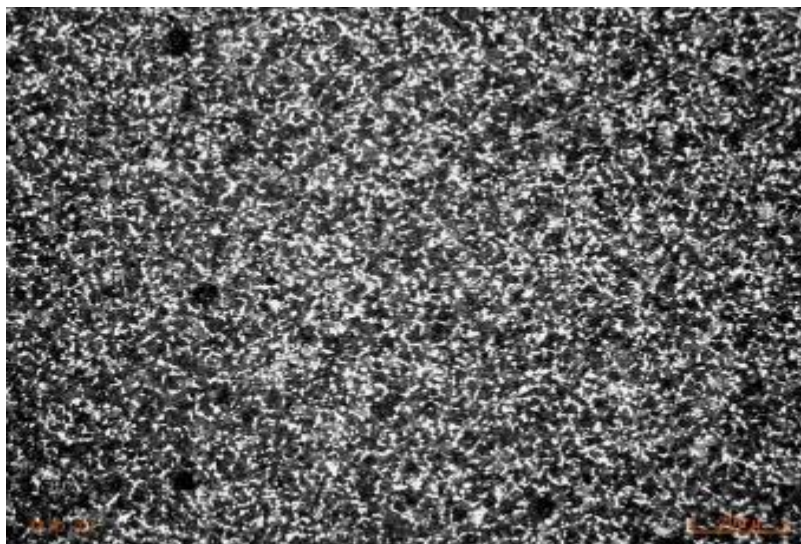
灰口铸铁 正火 基体+片状石墨



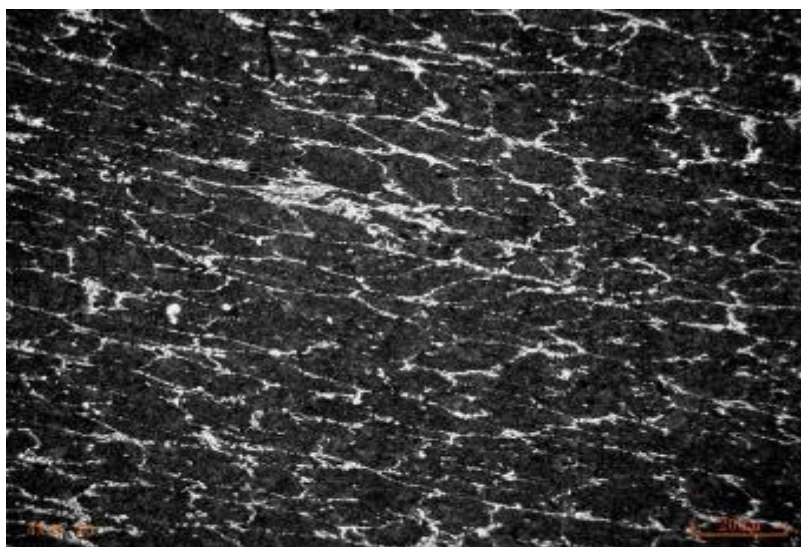
球墨铸铁 正火 珠光体+铁素体+球状石墨



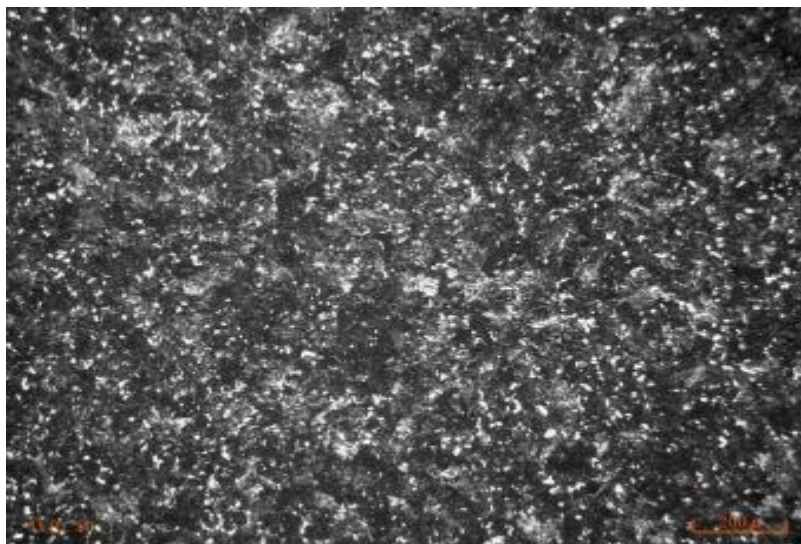
20钢 轧制正火 带状珠光体+铁素体



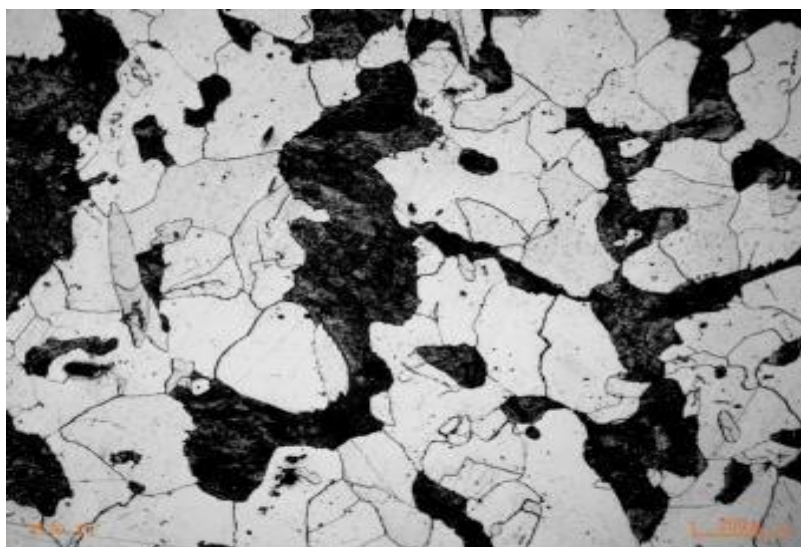
45钢 正火 珠光体+铁素体



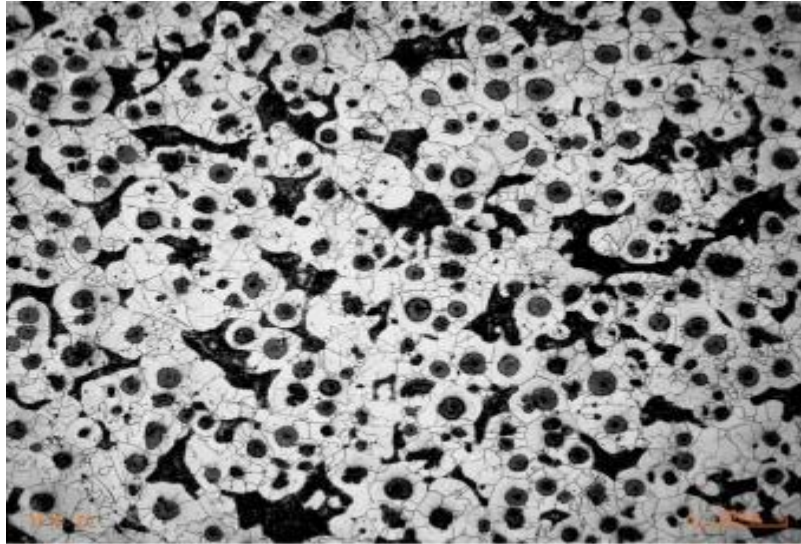
W18Cr4V 球化退火 回火索氏体+网状碳化物



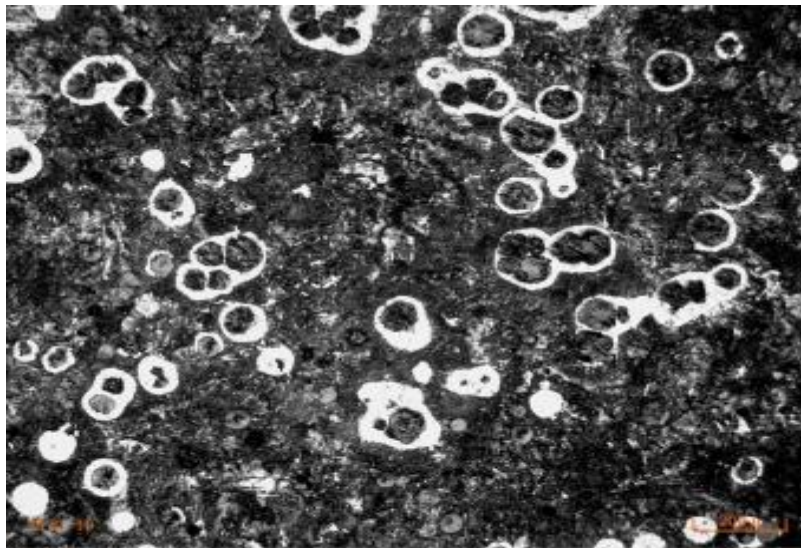
T8 正火 球状珠光体



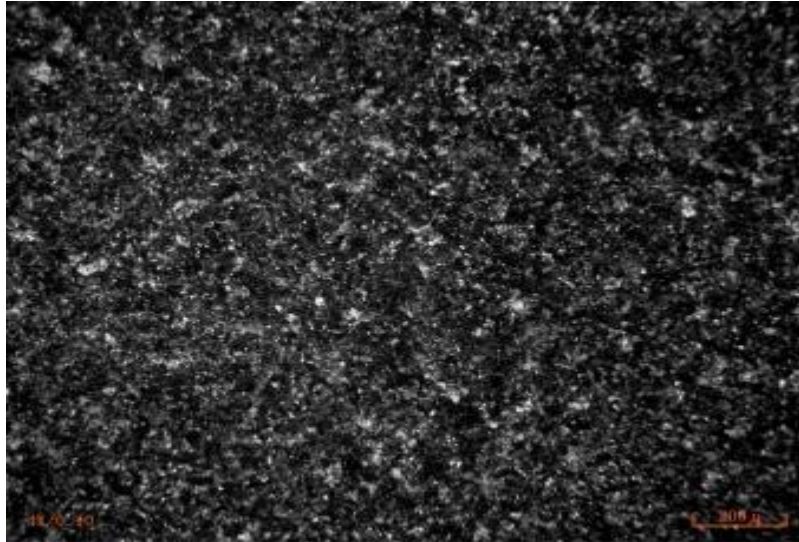
ZG275-485H 铸造+正火 珠光体+铁素体



球墨铸铁 正火 珠光体+铁素体+球状石墨



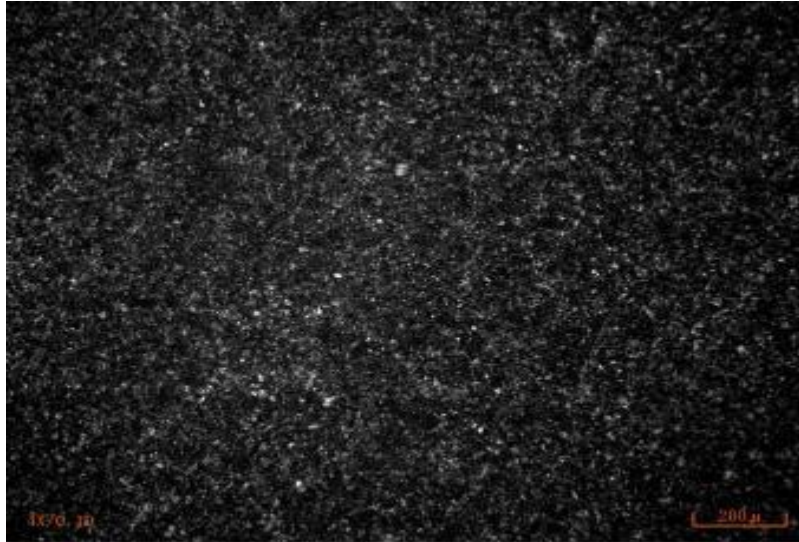
球墨铸铁 正火 珠光体+铁素体+球状石墨



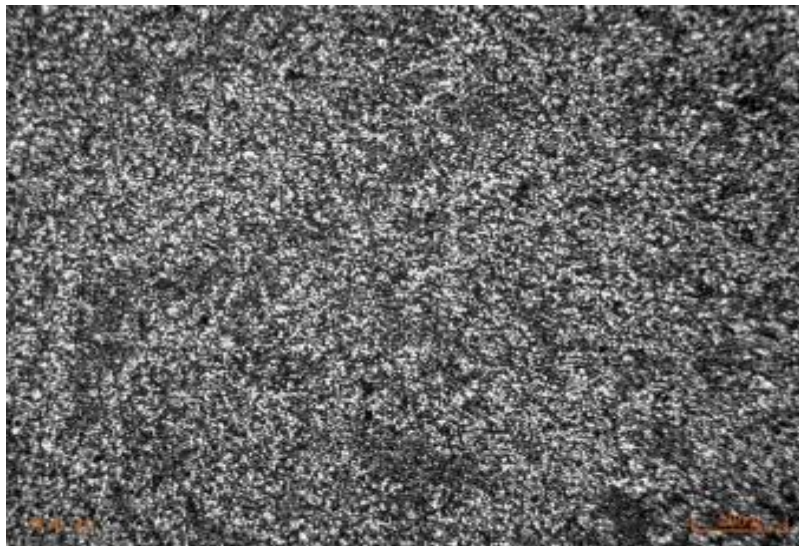
T8 正火 片状珠光体



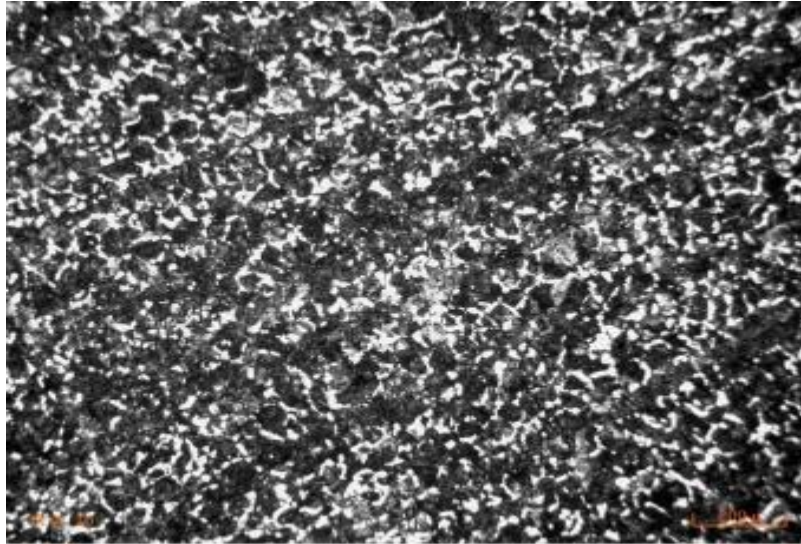
40Cr 调质 回火索氏体



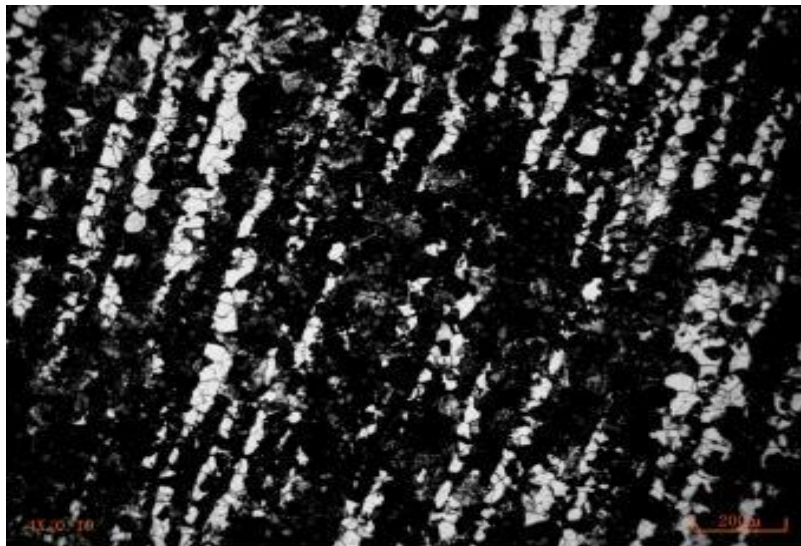
40CrNiMoA 调质 回火索氏体



42CrMo 调质 (未充分) 回火索氏体+铁素体



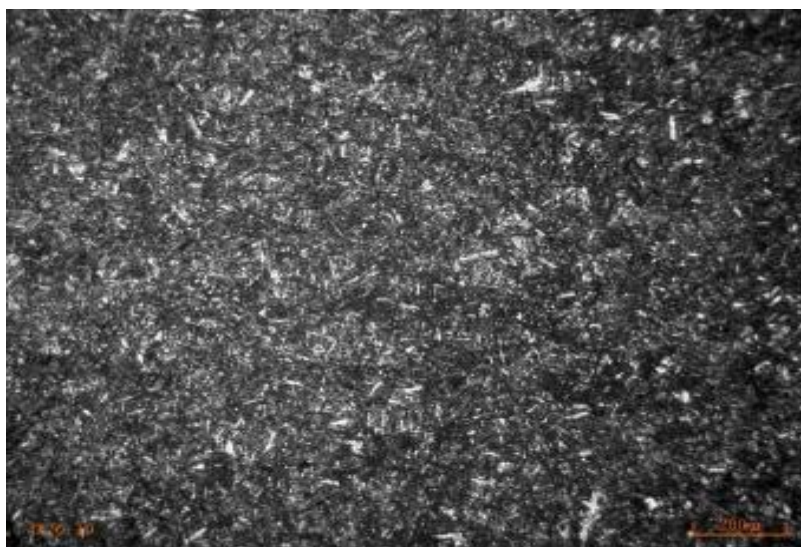
42CrMo 正火 珠光体+铁素体



42CrMo 正火 带状铁素体+珠光体



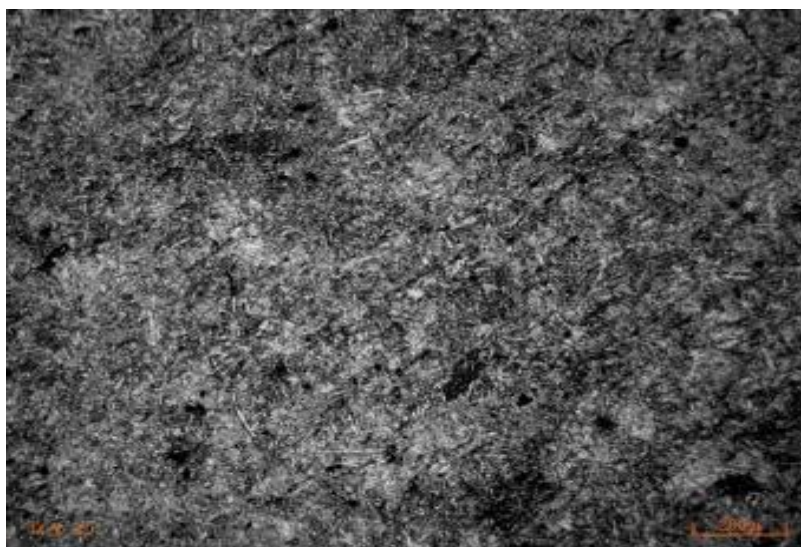
??



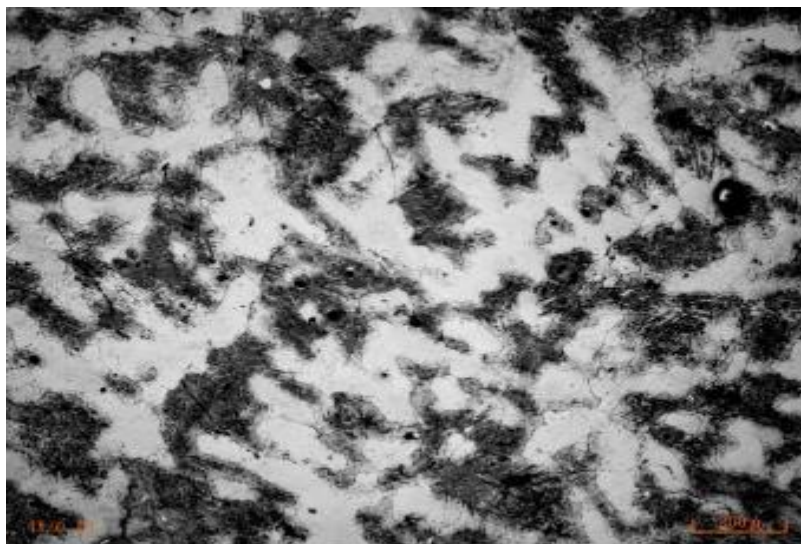
18Cr2Ni4WA 渗碳淬火 针状马氏体+残余奥氏体 (渗碳层)



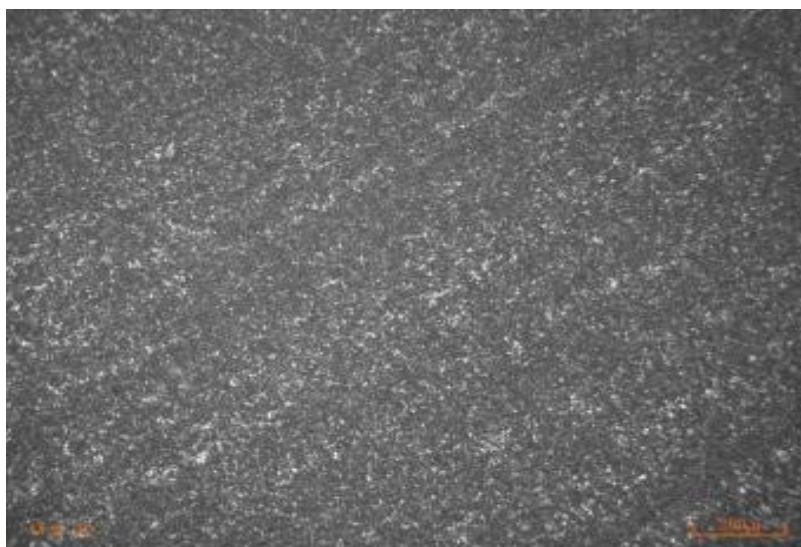
18Cr2Ni4WA 渗碳淬火 针状马氏体+残余奥氏体 (渗碳层)



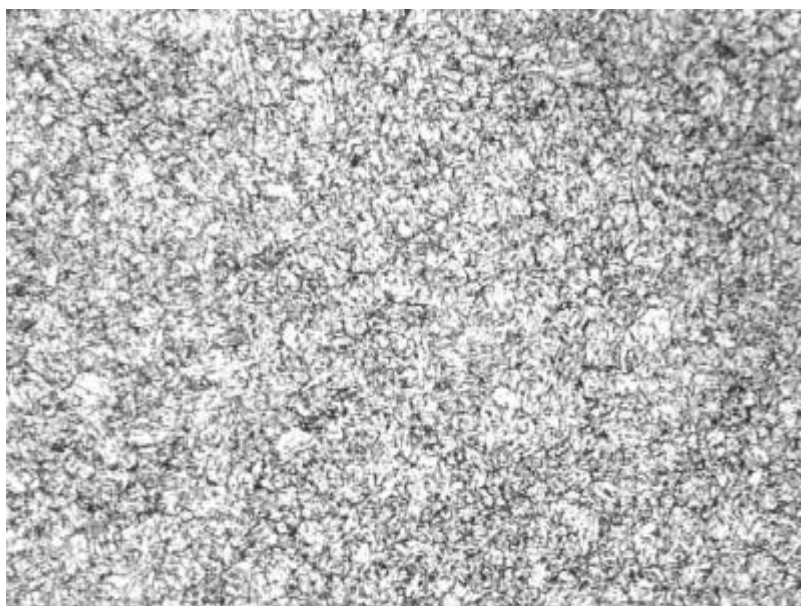
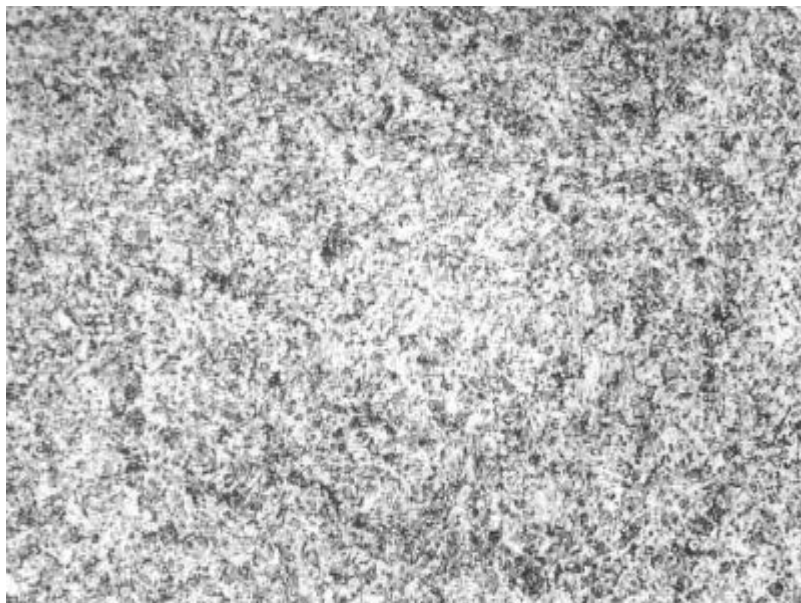
18Cr2Ni4WA 渗碳淬火 针状马氏体+残余奥氏体 (渗碳层)

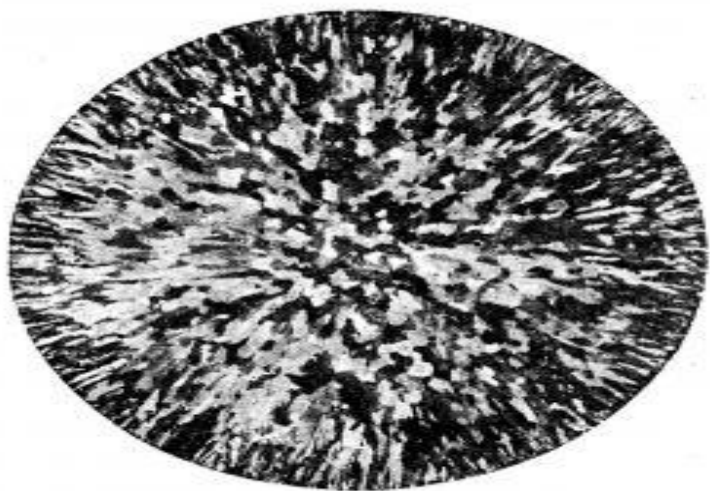
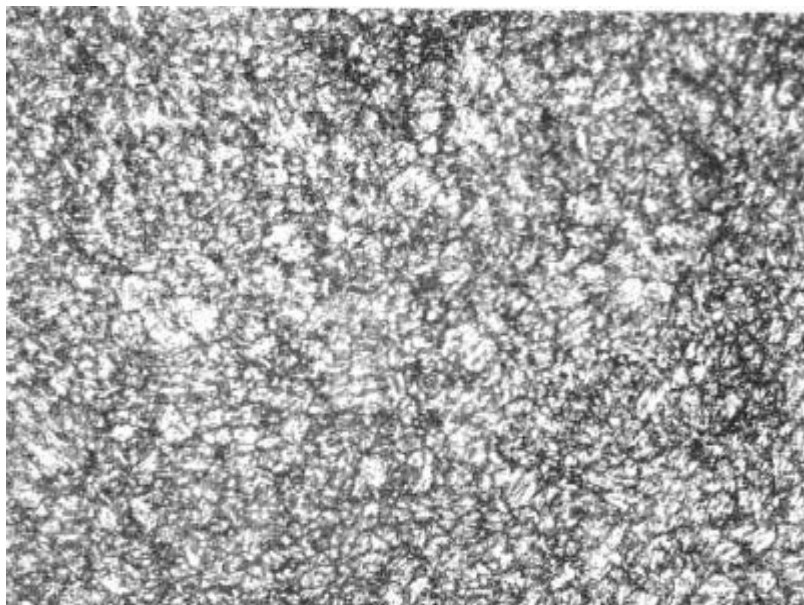


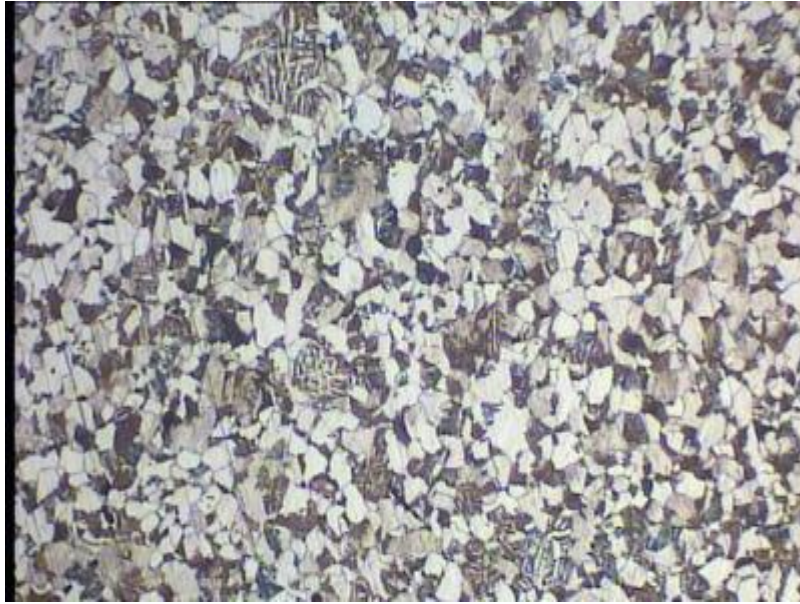
ZGMn13 铸态 奥氏体+碳化物+缺陷



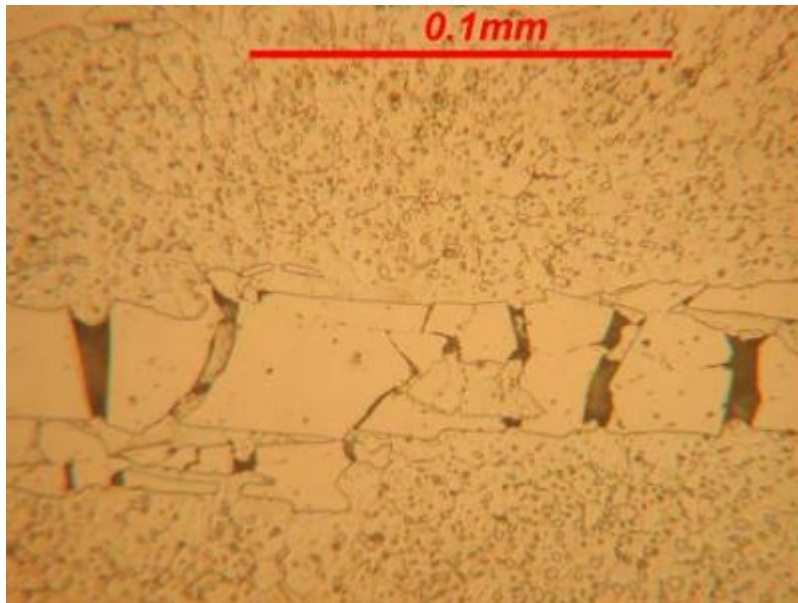
GCr15 淬火+低温回火 隐针马氏体+颗粒碳化物



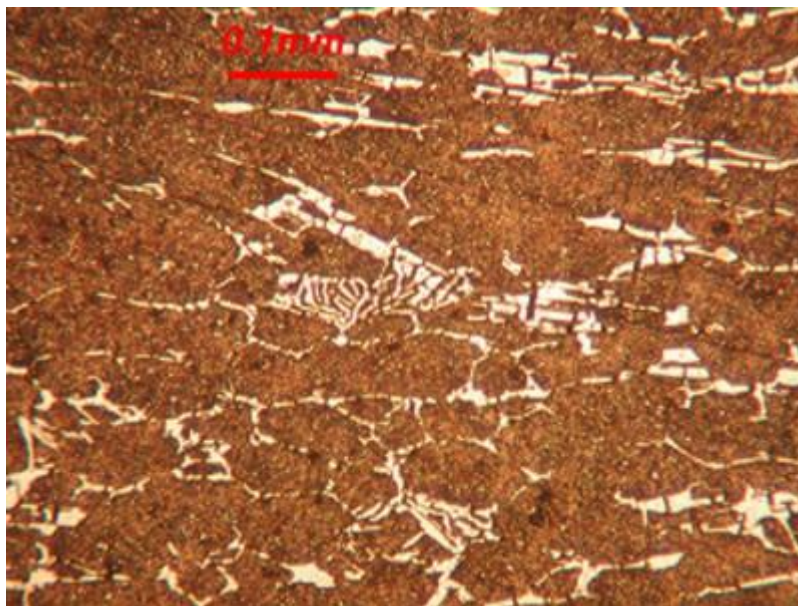




Cr12MoV 热处理淬火以后共晶碳化物内裂纹



Cr12MoV 原材料莱氏体共晶碳化物角状化；碳化物拖尾及链状



GCr15 材料低倍组织检验

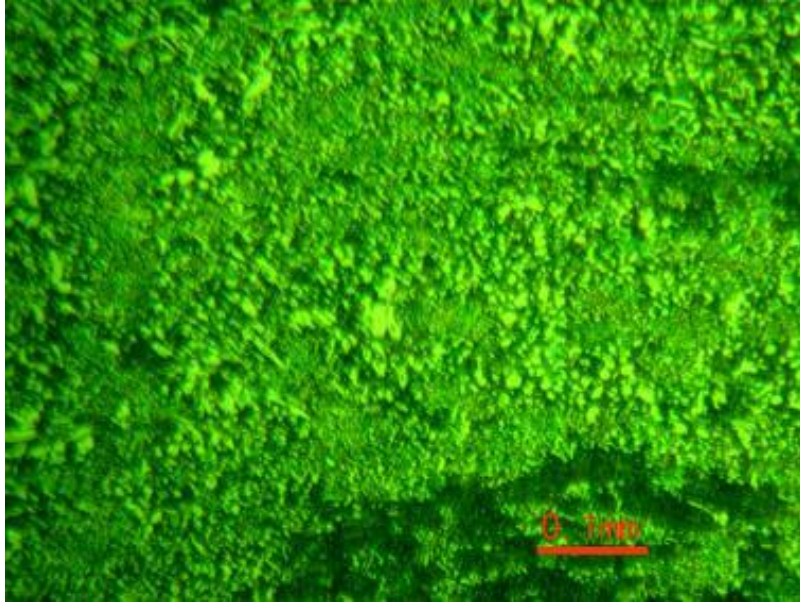
Φ165mm 原材料（图 1-4）发现在切片横截面上近中心区域呈现颇多的细长条发纹，裂纹二侧呈锯齿形，是典型的白点裂纹，按 1979-80 标准中Φ150-250mm 规格评定，白点裂纹为 2 级，属不合格材料。



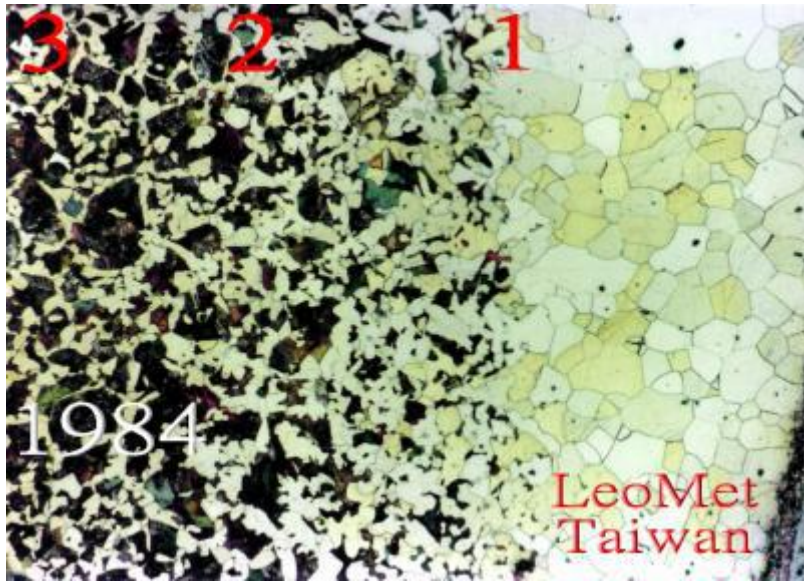
Cr12MoV 未热处理时工件上存在内裂纹，工件高度=60 毫米。反面没有裂纹



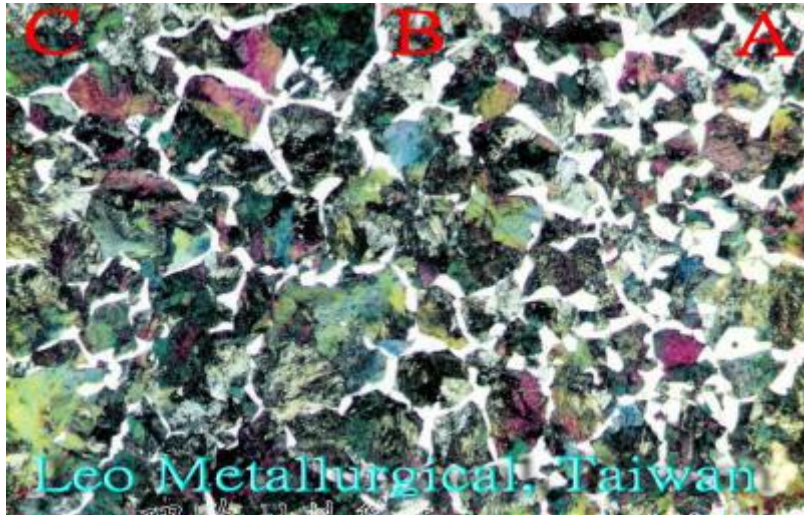
原材料 Cr12,Φ90mm.共晶碳化物>>8 级.



碳钢脱碳

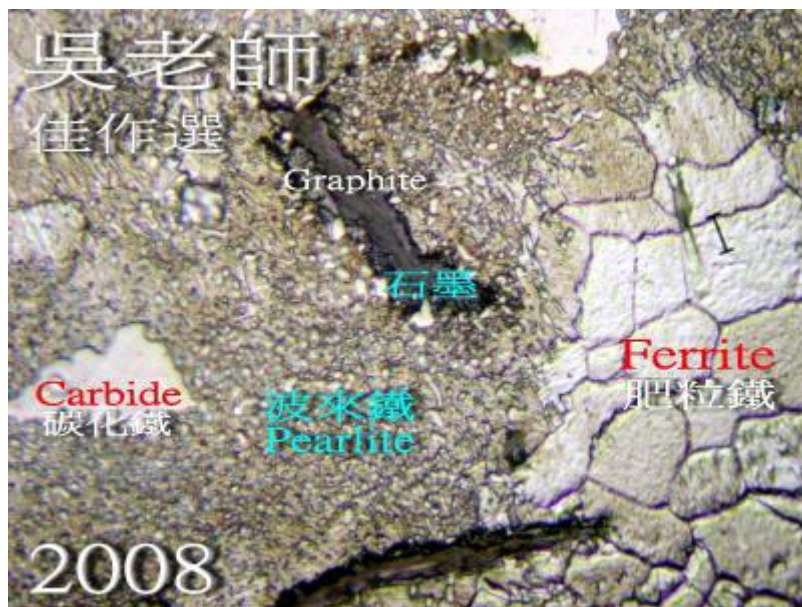


图片1



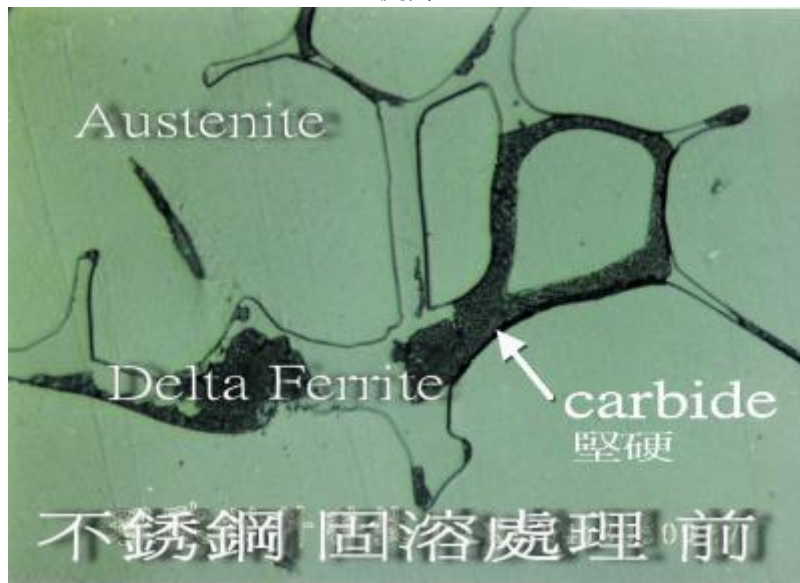
图片2

铸铁金相

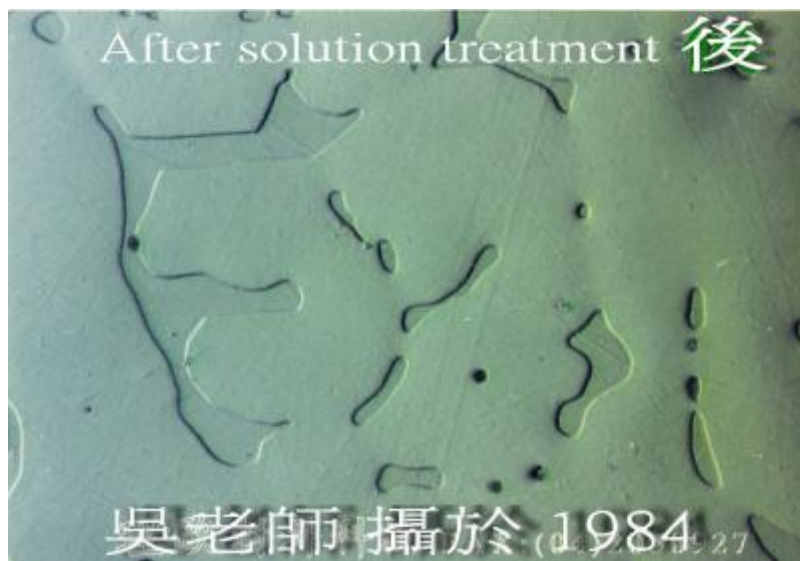


不锈钢(铸)

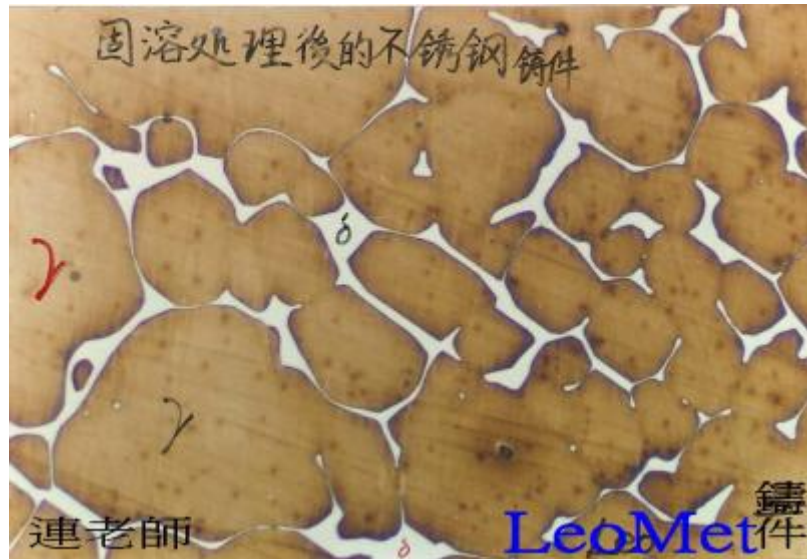
Delta Ferrite 内的 carbide, 以类似 Fine Pearlite 的型态呈现, 并非黑黑的一大块. 需放大 2000 ~ 3000 倍 才可看出. 处理后, 碳化物固溶入铁素体“岛屿”(islands of delta Ferrite), 故看起来乾乾淨淨. 切削性与耐蚀性获得提升



图片1



图片2

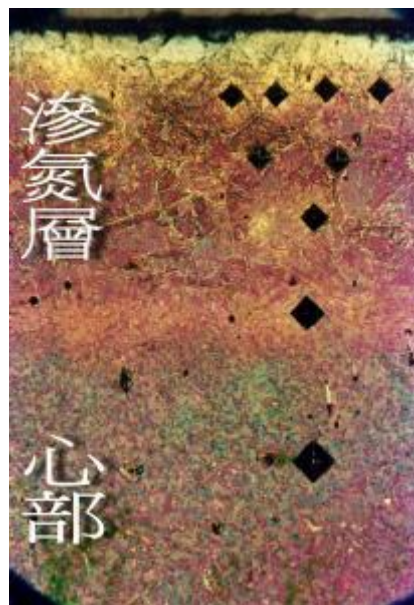
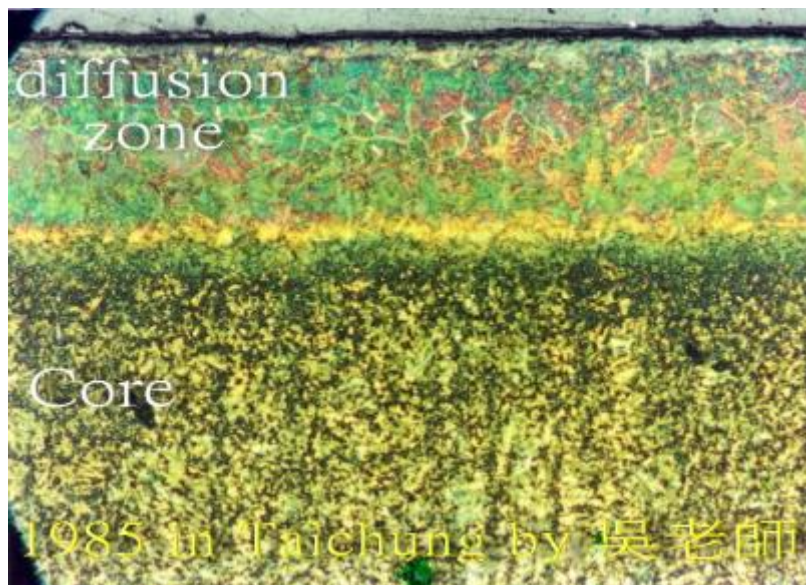
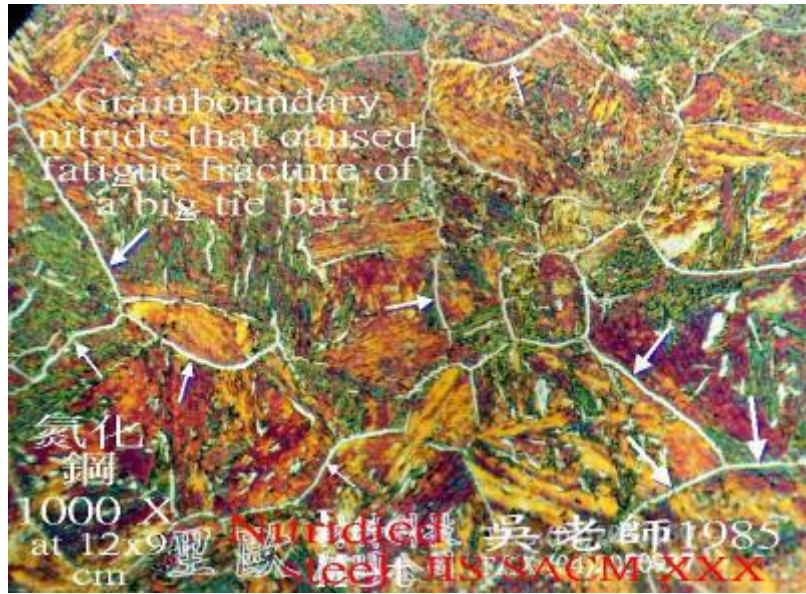


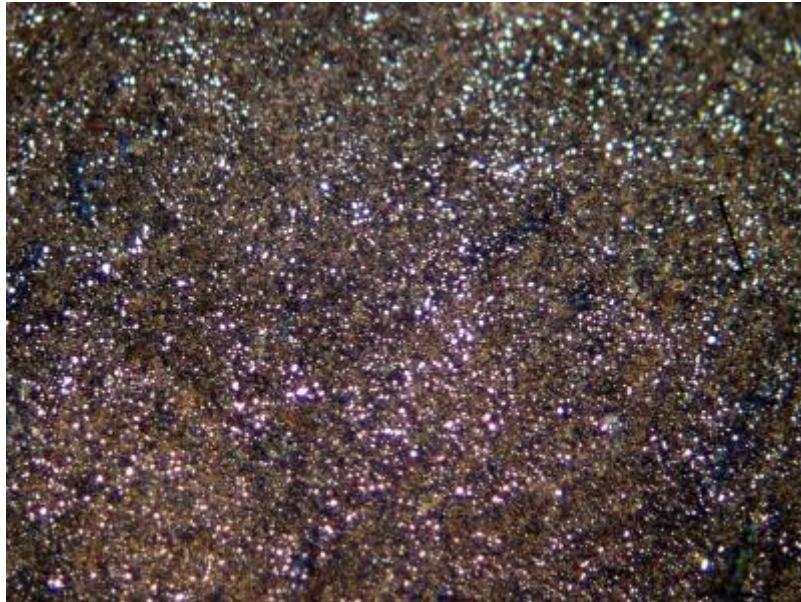
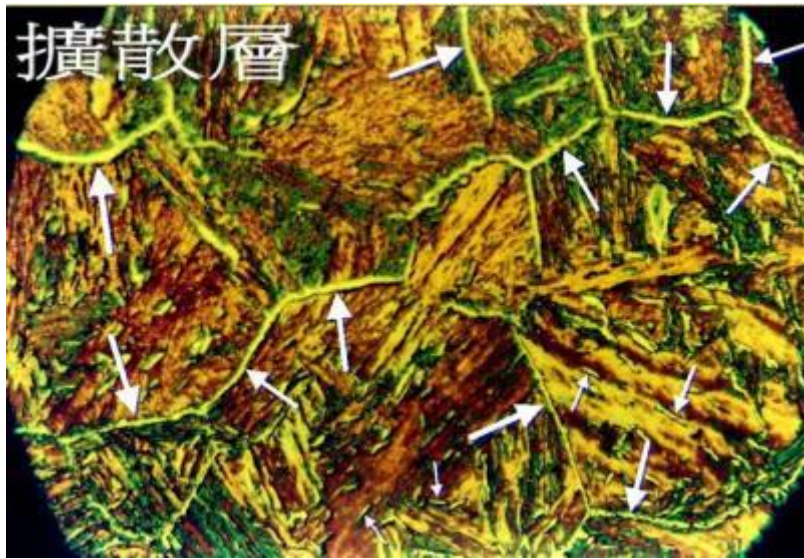
图片3

晶界上的氮化物

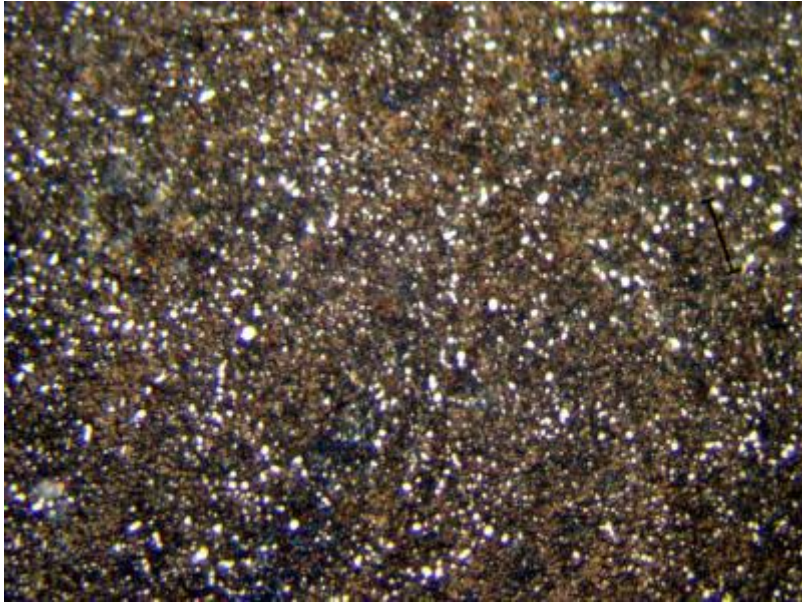
大型塑料射出机的 *tie bar*, 直径约 250 mm. 疲劳
断裂送验, 致命杀手是晶界上的氮化物薄膜 *iron
nitride film*

最后一张才是 1000X, 前面那张是 500X. 晶粒内也有
小段氮化物析出.

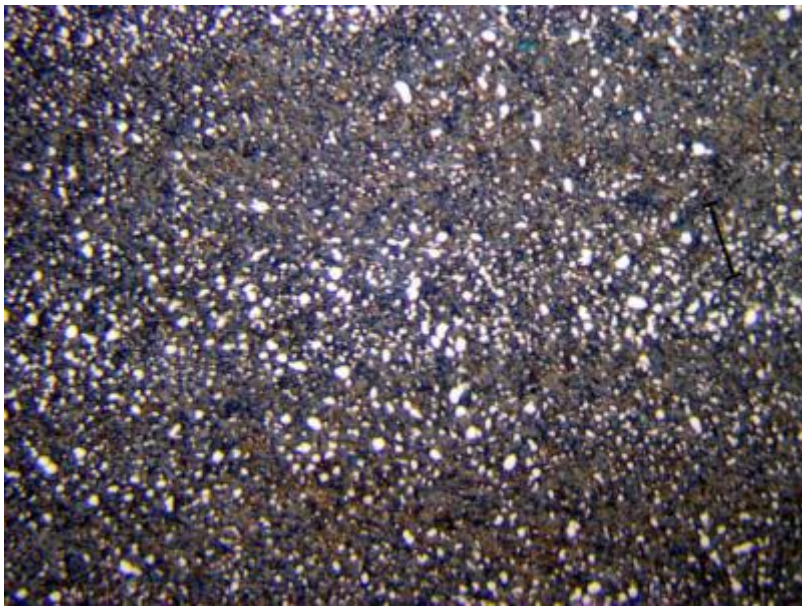




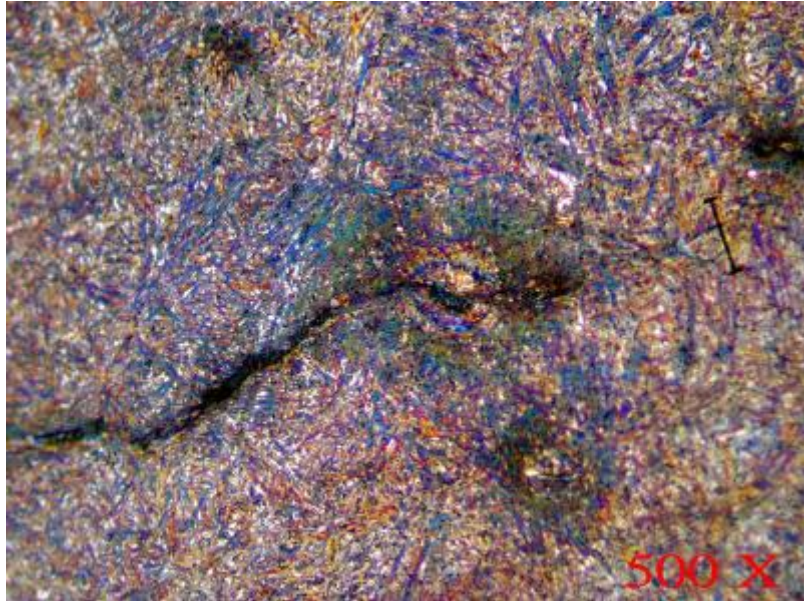
[图片1](#)



[图片 2](#)



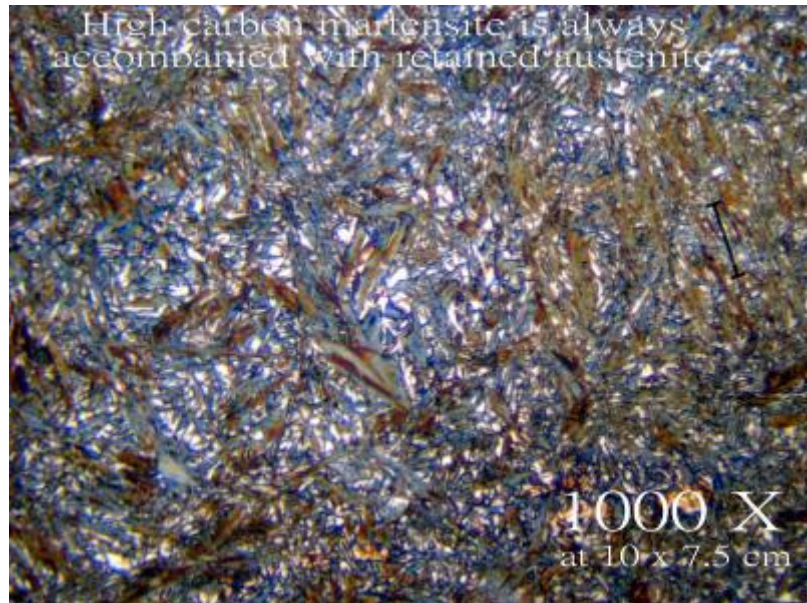
[图片 3](#)



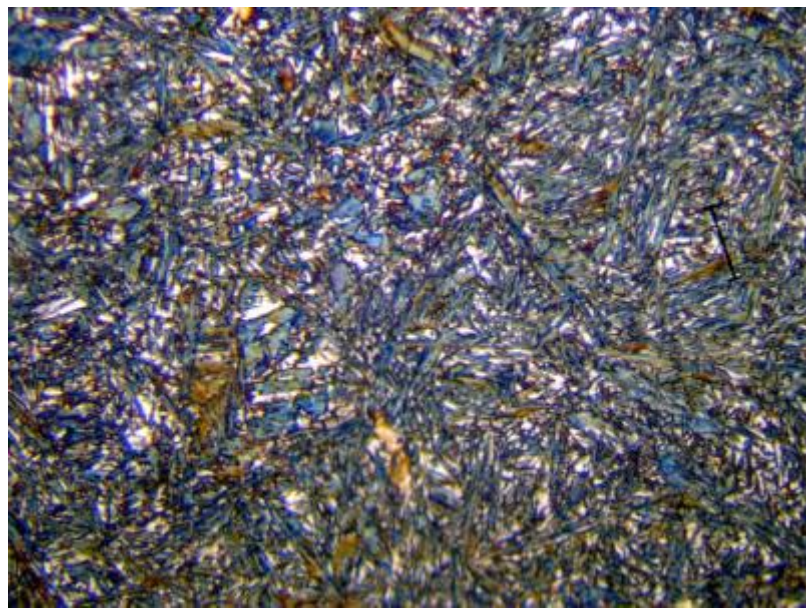
图片 4



图片 5



[图片 6](#)



[图片 7](#)

JIS SUJ2 轴承钢两种淬火温度的组织

正确淬火温度:

$>/\sim 800\text{ C.}$ 两相区, 淬回後: 碳化物微粒分布於 回火 Martensite.

以碳化物微粒抵抗磨耗

错误淬火温度:

$>900\text{ C.}$ $>A_{cm}$ 单相区 (碳化物微粒全不见了), 淬回後: 残奥 (残奥无硬度可言) + 回火 高碳 Martensite (相变化膨胀大 易淬裂).