## – Ensaio de Metalografia

O ensaio de metalografia almeja conseguir avaliar a morfologia de um metal a partir de uma análise feita usando microscópio. Para conseguir performar um teste de metalografia, é necessário antes realizar uma série de procedimentos para que a imagem gerada pelo metal seja boa de analisar.

Primeiramente, é preciso cortar e embutir em baquelite uma amostra de cada metal. Isso é importante para que o manuseio da amostra durante os processos de lixamento e polimento seja seguro, confortável e ergonômico.

Após isso, é necessário lixá-lo com lixas de granulação 320, 600 e 1200 grãos de areia por cm². As lixas utilizadas ficam continuamente mais finas pois estas irão realizar um papel de polimento da amostra sendo que as mais grossas são usadas para tirar defeitos mais grossos e expostos na amostra.

Feito isso, será realizado um polimento com suspensão de partículas de diamantes de 3µm e 1µm. Fazemos isso pois a lixa 1200 é equivalente a um polimento de 6µm, logo o polimento com suspensão de partículas serve para reforçar o polimento anterior.

Os processos de lixamento e polimento são realizados para deixar a superfície do metal apenas com falhas que mostram diferença de microestruturas, tirando riscos que aparecem durante o corte doa corpos de prova. Entre os processos de polimento e ataque químico, é lavado com água e detergente a amostra, e depois também com álcool. Esse procedimento é feito para tirar quaisquer partículas de diamante ainda restantes na amostra.

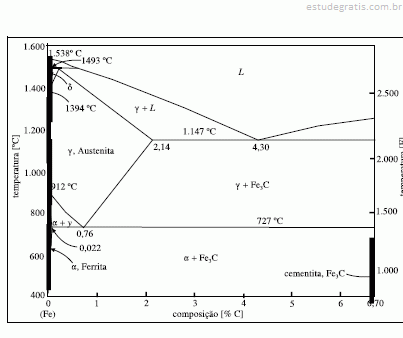
Feito isso a última etapa antes de tirar as imagens do microscópio é fazer um ataque químico em nital 3% por sete segundos. O ataque químico é feito para atribuir falhas pontuais ao metal, afetando a microestrutura deste e impedindo--o de refletir toda a luz fornecida à superfície do metal. Feito esses processos as imagens de microscópio poderão ser geradas.

### Análise de imagens de microscópio

Para o estudo de casos de metais dessa atividade, foi usado o método de microscopia para que seja feita a análise dos corpos de prova, ou seja, será analisada imagens que o microscópio óptico gera. Para esse tipo de microscópio, o principal mecanismo que forma a imagem é a luz refletida no corpo de prova.

Nessa análise terão de ser encontradas características importantes na imagem fornecida pelo microscópio para tirar conclusões de qual metal está sendo avaliado, sabendo que serão feitas análises dos corpos de prova antes de depois do ataque químico.

A característica a ser encontrada antes do ataque químico inclui, especialmente, a oxidação . Porém, por termos polido o metal anteriormente, a oxidação não aparece significativamente na superfície.

Já depois do ataque químico, procuramos encontrar diversas características, uma vez que a reação de nital 3% com os metais evidencia microestruturas formadas no metal***.*** Veja a figura 3.1 abaixo mostrando as microestruturas estudadas: 

2

3

1

Figura 3.1 – Diagrama de fases ferro carbono

- Austenita: Estrutura formada no ferro por volta de 900°C. Com as mudanças de fase provocadas pelo esfriamento do aço, não aparece nas fotos, onde o aço está em temperatura ambiente.

- Ferrita (pró-eutetóide): Formada por volta de 850°C. Tal microestrutura se forma nos contornos de grão das austenitas e se caracteriza pela coloração mais clara.

- Cementita (Fe3C): Com maior esfriamento do aço, cementita se forma. Ela é caracterizada por sua aparência em linhas enfileiradas e ocupa o lugar de onde antes havia austenita.

- Ferrita (eutetóide): Ferrita formada na mesma fase da cementita, é intercalado com a cementita em cada grão.

- Perlita: Nome que se dá ao grão que apresenta tanto cementita quanto ferrita.

### – Amostra 1

Uma imagem contendo chuva, pássaro, grande, água

Descrição gerada automaticamenteÉ iniciada a análise metalográfica da amostra 1 vendo sua imagem no microscópio antes do ataque de nital 3%. Veja a figura 3.1.1 abaixo:

Figura 3.1.1 – Amostra 1 antes do ataque de nital 3%

Uma imagem contendo tapete, frutas, andando de, branco

Descrição gerada automaticamenteComo é possível ver pela imagem, os pontos escuros do corpo de prova mostram buracos deixados por pedaços de ferro oxidado que foram tirados durante o polimento do corpo de provas. Compare com figura 3.1.2 abaixo, onde é possível ver o mesmo corpo de provas após o ataque com nital 3%, com o mesmo índice de ampliação:

Figura 3.1.2 – Amostra 1 após ataque de nital ampliada 100 vezes

Uma imagem contendo tecido, tapete, cortina

Descrição gerada automaticamenteAgora, é possível encontrar diversas microestruturas, sendo que essa amostra mostra uma forte presença de carbono nela, uma vez que o carbono forma a cementita, o que dá essa coloração escura para a amostra. Ampliando mais a amostra (figura 3.1.3):

![Desenho de pessoa com tatuagem no braço

Descrição gerada automaticamente](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAlgCWAAD/4S2MRXhpZgAATU0AKgAAAAgADQALAAIAAAAmAAAItgEQAAIAAAAMAAAI3AESAAMAAAABAAEAAAEaAAUAAAABAAAI6AEbAAUAAAABAAAI8AEoAAMAAAABAAIAAAExAAIAAAAmAAAI+AEyAAIAAAAUAAAJHgE8AAIAAAAHAAAJMgITAAMAAAABAAIAAAIUAAUAAAAGAAAJOodpAAQAAAABAAAJauocAAcAAAgMAAAAqgAAEhIc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAFdpbmRvd3MgUGhvdG8gRWRpdG9yIDEwLjAuMTAwMTEuMTYzODQAQXhpb0NhbUlDYzUAAAAAlgAAAAEAAACWAAAAAVdpbmRvd3MgUGhvdG8gRWRpdG9yIDEwLjAuMTAwMTEuMTYzODQAMjAyMDowNDowOSAxODoyMDozOABNRUMtUEMAAAAAAAAAAAABAAAA/wAAAAEAAACAAAAAAQAAAP8AAAABAAAAgAAAAAEAAAD/AAAAAQAJkAAABwAAAAQwMjIwkAMAAgAAABQAABHokAQAAgAAABQAABH8kQEABwAAAAQBAgMAoAAABwAAAAQwMTAwoAEAAwAAAAEAAQAAoAIABAAAAAEAAAmUoAMABAAAAAEAAAgI6hwABwAACAwAAAncAAAAABzqAAAACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAMjAyMDowMzoxOCAxODowNDoyNwAyMDIwOjAzOjE4IDE4OjA0OjI3AAAAAAYBAwADAAAAAQAGAAABGgAFAAAAAQAAEmABGwAFAAAAAQAAEmgBKAADAAAAAQACAAACAQAEAAAAAQAAEnACAgAEAAAAAQAAGxQAAAAAAAAAYAAAAAEAAABgAAAAAf/Y/9sAQwAIBgYHBgUIBwcHCQkICgwUDQwLCwwZEhMPFB0aHx4dGhwcICQuJyAiLCMcHCg3KSwwMTQ0NB8nOT04MjwuMzQy/9sAQwEJCQkMCwwYDQ0YMiEcITIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIyMjIy/8AAEQgAlADbAwEhAAIRAQMRAf/EAB8AAAEFAQEBAQEBAAAAAAAAAAABAgMEBQYHCAkKC//EALUQAAIBAwMCBAMFBQQEAAABfQECAwAEEQUSITFBBhNRYQcicRQygZGhCCNCscEVUtHwJDNicoIJChYXGBkaJSYnKCkqNDU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6g4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2drh4uPk5ebn6Onq8fLz9PX29/j5+v/EAB8BAAMBAQEBAQEBAQEAAAAAAAABAgMEBQYHCAkKC//EALURAAIBAgQEAwQHBQQEAAECdwABAgMRBAUhMQYSQVEHYXETIjKBCBRCkaGxwQkjM1LwFWJy0QoWJDThJfEXGBkaJicoKSo1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoKDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uLj5OXm5+jp6vLz9PX29/j5+v/aAAwDAQACEQMRAD8AxYJBKCADTXgEbZL/AIVwSbTOiGw5FzxjrT2iUREj8aE3cqT906bw/rkUVgqucBDiulOsRKqsuSD0qknGV/6/MinNJFYa8hJUjax6ZqSxLXdzvL5A6VTumkUpcxtNIscTFiBiuZ1TxPFajZEdze1Omm0xTnyEUdx9ph8+Zgw67ayG1wCbG393nGKcE3dDg2lcl1HZdJGUYBlOcVraFc+RdpG/G4cUT2VuhMr81zsUbd8w79KcOv3s8VnGbehog45xyKVm+QmumU27Fp6DC3Bz2rD1vVxp8a45Y9PeoUrz1Jk2lc5km7v90shIjNaGiarbxqsJbGCaUm5a9jJSUdzqoLhZEBBBzU+3P581nzM3TdjK1LT1vIGjcZz0rl5PDGZFAB5J5rXnfKKUeZ3OitdEgihAKhsDnNXFsYlUDYOPasIXe9hxglseM21zsXO3FTyTAkZ5J6UnG7ME7IhNw5lCqpxVgwSGNS8bEGrjGzJlJNWJrVljikUKR04r0PSESfT422jn1pVlqrjp2TViPWNPR7OTgbscEVS8O3Ai07LEZBIJqnrBGslrcz9U8SmS48hTiPuazoJbaS3laQZcY65rblajYxk4vcZaalEkE652nHANY8E6xjzS2TuOBirjHewk7R0NaK7tZkUzMRJ+NWprl0MbQKcryDmpcHfUhzilpudpoWtLeWyhuHHUVrS3SIDlucVyrSdkbxkrGZZaylzcSICBtrZ85TEeRWknrY0i1y3MjUdaisxtJyxPQVysyz6zfK7giNfWqSabZm3zPlReu7yG1RYmPXge1c9LEIL0mQ4hJyD+FXFWViK7TSXYvR6xPYXMbM2YWOB7Cu/s7hJ4lcEYbpWM1YdCb1iyZlG3jqab5anmod2jpi0PIUZGBS4UccfjSjZIdlc8GgjZzt7t0FayWP2dN7kM3YVctHY5E7kccNxBJ57xgAdKvW2pHf8AOd49AMU+WO9iotobMr/aGleLakgrd0bU3TSGWI5dTwKc4p6kX1ualxdNLpTtIMSEc81zWnO4tH3ArGp596cLcprzO12Y+pMVbiPCk96qy3iCEpCpyR8xNdCta5z3jYz381t2M89ajto2AJGTg1q3ZGctNzWgVfNEhUhvStx9Q+VREgKjrWTV9Wa05KKsDXotJ0e3Yq55K1s6XqE2oXrLI3y46H6VlNJLmC65rIculMNQZo5didxjrWzfXy6bpr5JJHQGk7SkjWEVBNnNQiW8ka5ueQPujNWrO/EqOmzYQMCq3d2O/Lpbc5q+mKymORyz54OOlWLlj9iijZtzDrnvVS1ZhG2rIJ1kuo9p+WMYx7V1nhnV1ES2sjAup71FVJoKclzcz6nVicFOO1BnVX7dKwS0Z2x9Bj3cYyQRmsyXXI1kI3dParp04te8Oc1E5S7sLKzgD+WMjpzXMTXCvMzIGU54qoK6uclSMUtNCf7Rd3a+W2Nq0RQvGchuTQ7bCjzS1HahdXb24ViOantbWWC0EzSFD2HrWmiskacnNe5o2Qvb+QRsCsYq5rUYtbKNEG3Jwahtc+nQH8NiCKwTULllYZAUYPpxVe98NPbwlo13DvRGdm0zFx926MNtLmB3GJhzweta0Ph6cQrLEvJ65q3PUmC5noRyaRf5LOM5+lTRW93FHt+z5H1qnKMrDUpRldr8irFB/wATQS3KkKex7cVsxBUm86zbOOoAqZay8hxSk79SX+1WEiSDjnDAitbUoTqum/uzlsZFRK0ZXNVLmVjn8XGmRhppOPTjis+d2EiuZ/lbpxVx1ZFRy0uyrfS+Zdg8YUfnxUsQuro7ouQo9qpuKJTla8TpNHVNQtj5kfzKeRUOpWkenhrmI7ZFPBrKFnKxrKEZQ5upUs/E91INu3eR15xU51a6uFZhLg46Yq+VRX9f5mKqzlp/l/kMtNRka1lDyneeF4rQttOna3VmXk+/vWTdluaLV6mPNdR6raiIfLIO1UUsJ4RloNx+tU0o+7cUr3v0JN2BhoCPoaY+RgiL8zQo2ZcV2RmwyGTVIhIuF3dK6HVJlMkMSdM8gVo17/yLhomzqNJtSLYSMMEisPxOzK0CqMjcciuekrtu5nd8jbNrQbEqnmMPmf2rd+yh4cEHFSo7tm1ONokH9noSTjv0xU6WSiMLjGelHL1NYLzGGzUk4HNM+xLg8cmmou6BJlWfSYpvvrn8K5nUIm0iVPIT5GzuNbU1d2MakVH3zL1C9ihu1cDIfG4V1ltqVsNOEikYx0qq1LVNGSkuZs4zXNSS8u8Z/d5qWKz+3ErApCgCnJNCqWk7LcifSJor5FnbIbpkV2Gn6LHZxLjBLdzWVSTbSLpU3f3iTSLYRTXBA4zWT4quVRUgUAs5x/KilH3rmu0bEek6KY41uOPnHFZMxNpfzRk8DmnBuV2YqDSF0r99fIvbdXqMNqPJXgdKwnuFtdDhNa8POJRPajDjkgVWt01SRghGB3JArplZpMvlknp+hS1O1vrebc7FlPcVBG8DwkyStuHbFVZtKwOXRk2laHJqUhuACsQPBNWn0u4tbxmIzgja1Zyqc0nFEb6nQadrUcsYgJAk6HikXSZLu+82YfIDwKjlcLpEWU9EdPbQCJMDjtirSqCvTpWcVozqSdgwCxGBSgZA+tOw47CLGC3AppUHjHFOzukCWgPHxg1kalpsd2oV1zgVUdGKUVJWZg3PhiGfdtGGOOfSmDw4Y7TywxyOpxXRKcv6/wCGMPqy1a/r8Rth4UjWQvMN3NdFbaXHbjaiADFc87yl/X+RtClZf1/mOk0qCaVZGj5XkGrssKpGoxWbvzFKK3MbTp45JLhV5INcx4qBW/gY/dyf6VtSWruTdcp0+nLu0dDkcVxutxeZrbqvcDPvxWdB2TM4rmRa0eBYdVRSuARmvTInHlrnHSsp6sI67FSSAN1A5HWojaIBwK0k9TdPQrz20bAhgDXFX2gTT6oPs6YjPU1rCaitSJ+9Gx2mm2K2lqsQ6Ac8Us8Cytt68+lc9O972CKsinZ6BBb3HmBckHjNbkcQG0dxnmtW29SadNR2LAXnPenD7uRzxSjflZon0H5HQjNIM7MZ5zRr0GthAuH5NGORz3oWrTJWwpA3dc1EU5b2FLW93cbYwxDLEDih4htbj6VrNt2KUrIUQqoPpS+WMjIrNNqWwpCjbyaguyuwDvmp1bBbaHK6PkajdnPGRj9aq+KoBLZeaOqGtofGZw1jqSaDdE2ojZsgjisjU3EetbugI4/KppqzZMVyyLF3ew28cMqnMi1uQeJYvITLAHFY8llc53USk0bKahDI2A459ane5TZwQeK3lF3R13aRzdzrha+aCIAhD8xzWjp08Uqbiw3H9KmsrWJU5PYvXUywwl92MVQ0XUBqEjnGApxmiCdgc2nY3lQc0o4AxzzxQrmnMx/06UgyFxVR2YOTHKclvqKB93jnmk77ji3Yav3+tBzx3xRd3RN2O5HOO/NIPXrxVJu9wbdhFx8xxgmhgecHjjNVNPRju7D+WHFJ0A57Vl9od3bcjyQT64rD1+8ktrYyICSKqCu1cmc3FNo5PSdRlmln2jDtjFX9SjlOjSiU5f6e9Ve0tDCEptc3Q5u31M2pjCjgDrVe+uJZZo7mQ5HOBV6L5ilNuV0VZmkMig855GauIqFBmQA+lZyutjKNJPVnfvpEfBXKnB5zWddpe2UbMjF1ArVSTkrnXayOeswLy6O9iskh+Y+laNx5mnTxRxyEKf1p1L8zM2uqNPWLmU6Um3JZxitLw3aPbWykjBbmsOa6SFTu56nQrxux69aXuD29aV+p0J2HDGc5wO9HHl7vari0k0O4q8E8fiKFwF/Hk0r6aFJiD/W9enSlJ4pReqI5tBM8jPIFKDg9O1F9R3Y0HG4YzQejY9a2qSVl6AnoCkD1zkU0tg8d6xXxg2RNIoQ5PFYt1cQXUzW4OSO2KE1uLmS0ZxeoW82lP50TdDn61btfEEV3b+XKcMeorRw5veRhTbg2pGHqlxFM/kQLgKc5FV7hYhFGwbJUcirtbQhyjKVyJbgXJZscIMZqwqZUE9axm7aFNJrU9fZATnpwarz26vnI7dOtO6OlbHPanpqRKZYlCupyPesiW4XVJbdCpBUnJrR2Uboxm0mdkthFLAilQQgrQgj8oADoK5YNXCFrE4Pykn161IDwMjNaJx0saJpbCAgE8UAgx8ccU042bHzRFBwDx3oXAUj3qeZaoE1YB970oyfXH4UJrQlNWADBz6mjvn2oukw0RGM5PFK5wDkfhW0pLexWlipNqEUDEM2ORWTea7FFCZFOdvvURS5rkTkkjAbxfsc71wh5BzUemamJ9VZ9mFcZzn2omlFaf1+Jzqum1oZ+vSST6kIA3Hf8qwFdbO5YdSD0raPw2LlJcruDyGUlo1ILVUBmc7MZJPek2kjCL0ui1FEVyqLgk81dSaNUALdKys5bGzmkexOM456Z4pHXHTHSpaSlodXQz72AODnH41y2maQ4v2djmNWyoq27QsZ1I81juIUCqB7VS1PUTY2+8DIzUQgnIqTUYtlbRdX/ALRjfjBB5FbydV54NOUVexFOSlG4vO45PPek6Rn6ChJcrNHsHqPSnA5XGe9QOGwA/OcfnSZHA9KatdISSsLnn60rH5vwosIiyeecUy4k2xM1bSS0GtjzjWrqW51V0Tc2MYArNvIbyGMDdjd/D1qlK0rHJZyehGbOOBQs+dx9ulWbVks9TUkkow4OPaspu5CjFO9xdWtLhr0XcJyp9KqNo97eMsgj2+vI5qnVikavm2X6DLmKS2gMU+Ecfd96o3EiRqnl/eXOcU1aS0Jk2ldlzS0SdnZjgAZB9KrtCGYlScE+lQpWuJrmd0z2r+IZGOtDr1PXFDWp2pPlKd58kbEc49ah06L90OOTmlLzEjVCkLkVR1CwW8haNjx60U7qQSgpJplfStHj09WCHJJ5962FXjOMU1du4o0lGNkO4ySKQA7enakrcrHy6CHB3Yz25pA3HWo3KitBvmjd1AIpVfKjnJpW1RC2JAT9eaXPJI9KL3YyE/LuGOlc74k1drC1ygyzc4zXTy3aVxSfLG6OQs9XluriVvKGBjLZrNvtSuHv13LtAPHNPljzMw558tzUTUVkjxPGGU07V1iksfNgx8vasFBcwormi7lDTtTkjIypeEda6BtetUg3AZPpSlC7CnVSXKzn5T/bt3gDG2szVbU2MyQDnNaRb+EJR+0V0vZIEZIxtUjBxV+3lsjboXPzY5602m9iJcq0Z7KeozyME0PytQ4q+51r4ShqR/dlc8npU9kpVFGO35U5xWiuJbl/GePwpuzn8amMVfcu1xFGDwSMGnjlRz60+Wz3EkN7laTJCZyMYpKK5XqK1tiCe5SJSWbgVx+peLfIkaKJd+OhzinCnzGc3yxuZtt4k1C7uNiL8v4V0mmX95s/0hDxRUSTSX6nPTnNvXb5GtDqEbkAtg9xV1XD87s8Vkl0udVr6iO21GPQ4rz3xZdl7nywhLLyK7IQV07k1NInIRzPFM4DZJPzCp57G4aVJSDg1cklI5LtssojFNpyCBgmrYtJkibyzuVh0rmk9dzSCfQLS4t7XT5EcDeD0otFhvYJNybe/FLl6s00INEUW2oOBnYe9Q6nL9p1Dae36VVlcm7tYrXOnm2JBG7d0qaPQpzGpAHIpOStqEoXPZsksB3INK2A3A+lS09zqs+Uo3ke9gD/AHqtxIcDHpSlF3Qopljnp+YoAOc0oxaZSiwI5ye5oAwBj1NU4SuKzTGYJb+maoX96lpas7NgY70lF2E07XPPtX1+WclVc8nAAqtZwi9jaOUYOPvE10W5UY2fwpEkMsmk3AOAyVv2/iS328jBrnqU23cmDcdJFTUtThmQPDLtYHrjrWl4c1o3JaN33bR+dDjpcTdqmh0hmDr8v481zmu6M164dDtPetItxOnlconD6rp8mlXokA3BjitXNy8KsyAoR61dTWSZze8m0VN/zHYCCeop0UzeYNjFWXqPWocLBDTYzZk+2Tu0f/Aqk0xpYPOjPA96c9rERu3p1Npo7axsVnH3z0qlaWS3SrcH7xJLVhFyUGypKzsOureV70ZXciYwK3re4h+zp0HFRUTaVg5pJnahcPnOKkYgr9R1roc2mdd9ClL886gHqatxPhQOlRKcriV7EuSCcDn1pQefxpxlK49RT0b2NHPXHGapTkguRu23cAa898Z37KUgVjz15rSi22yJ7HF5m88ErzWnpjx5Z5ZCpA6VpN32MW1Jk2IZ4mKOzjPpSLCoIGSv4VnK/UiyezJfssZUjzefpU1iht5CYpCpPTis05JlTg7aHS2d1JbW26eXd68VtW9xHdwMy8jFE5uyZ0U7pWe5zfiu2X7EXwCV9fwrB0PVRHF5dwOCeCat3lG/Uzm7Tux2p30YLLboNx/iFZ0OoiGJlnX992NJbJGbnaRJFG8JWVOFb71Ury4P2k+SfvegprW5MmkrDbeae7njhdyRnGMV1FvZIlwIY5NmeoxUTelghBy3JNat5bUxzxglRwarRXA8sZXmo+yjWWj5Weks3OD6HNVri8jjRmLDIFN7mt9DFtdZhn1Bgrc9AK0G1aOG4EbKee4ole4lUtuaMN0k2QpzVgP8wzSi7MtSdxcnHpRknGcnrVc13YFIgmPyNivOPE1sDqmW+6VFaUm1GRNS9jGmwhjc42k8nFXY7C1lP2lGyqjlaUm1qYK17Mhg1FolZbe37+tSSat5ihVhG4dc03BN6Euq72t+JLuhwpkiIzVgx2s0Z8mUpJjpips09B3UtOpBZFvPMV3Ice9dVY3EST+TGQVI6VFaUnZlRbMDxjqHy/Zh/EeWrnFKWqIr/MrdTXQk7ImT6lfz9s5KndHnmnuHuZQ5X5e+KTjZmKl0TNBCWQRiQgemKgmge3fcADj3qI3vZmyTWoadA5he8P8ArAwwK6MQJcrHKhCTY/E1lOeugfEvM6B7fzrHZNgnFYD6YY3Kggge1KGqsa1It2Zp614kW0l8qHLydgK5PVtVvrhNrybQeoArpgknfr/XmZzqXfKi7axG2sY7i1XMpPLV1tsss1hG06Dec1hNptXHBuL5ehlaHcy2usyWrsdpPGfpXaxzDGMZzRPWdiqUtLEnBBx37UIcgY4xS2aRspIglwSQB+Nct4g01Z/LkYYIqoysnYmSUkcdf280YMQUt3WsqDUJ4pCBw/Qj1rSNmjCbvqjQsNSiXDyIA3eopr1WnISEKpPXNChrcOZOOxbg1UpAU2BgvcmmtfQTRZCbXx2NOnBc25EZ30aNjQ4Fv7Z/NGX6fStzT7SOzEhblx/Eaxqb2NopJXZzWvRtqmoLFEAUXknNZE1tJZSnfGZFPTBraMvskTvvYbMhWElYSN3TJq9pVrI9s+flQjr1xSeyJv72gxoI153n64qBriOFtkiFt56miKuVGSuSaczG6jTrGzYIrpNQ07yJVukO0KMkCsZrWyDkTZavNUH9m+ZB2HPNQx3vmxq+3ORSXuoKk9bI5qOeUXXmOuS2ckmk1aeBrZY1/wBYT09a6ftXErW1NTSkuo2toicITk130UeY1+lc82nK9jSk7ma2lwpqIulG1/T8Kt2UUy3jvIflPQVXNd3aLUVF6GrnCHIxTQcDn8TRddhp67ELyqNxJFc5r2oolmwQ5Y4qqbVndDvbUqwqt3pqMxG8CuZ/seJNRkSUdeQ1ZRqWukRHV6kV3p6QnDfd7Gqwt1G3HIreN7IzmrCSWe8qFjOM8mty00a2kiyp2kDBzSlLVWJpwTVy1oymwvnVpAyN0Nb2rxSy2TfZx85Hapckpao1jqrHFy2t7ZyvKSQMc96zJtSuIfuneT046V0wUZaswlJqRLa6jdNcIk4DK/GOK62C1trG2O7gPzzWVSyklEuHvNuRiMWvZittFhAeWpZ7eNpo1lO7Zy3FTdJtII6ptbGrommiW4+1bNqD7grc1lQllJwOFNZxd5GkNrnIaKiy+ZDKSFbkA1rf2dcRfJHyo6cU3q9SLdUZmnWcMuXdSze5rL1ZFOqxx4woPb6VeqYopONzukRYbFGjUAgCtqxctEuecg1zzVmaRINTlaGEsnBHSpNNlaWNGfkk1SWhskaPQVTu5Gjti6nBGapLUmyONk1C5cSFpOvtWUnzzpu5zycmru0nYxsua4+e6mhCIjYWrVvK1xtaTBJHXFYSSFFWmxjRrM/lvytWbOwtkYYj79zVK9iklJ6klzI0Q+QAYOOlQC4kwTxyOeKtxUXoaTvaxmI5NxjtjNdjpMjTWYL8kHrSq7ozopWLF1bxSW77lzXCT2sI1Ix7BtHQVVNbjrJMiWCOLUYyi45q9PK81zGjsSpHSqk2tTnekLIvyotrpsgiG2qjRLutkxxITu96zTtE0ex29vEkUQCDAGAKx9blZroQk/Iw5FTTVjZ/CZEcKRllUYA6VdS5mCAB+grTl8yIn//Z/+ExsGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczp4bXA9Imh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8iPjx4bXA6Q3JlYXRvclRvb2w+V2luZG93cyBQaG90byBFZGl0b3IgMTAuMC4xMDAxMS4xNjM4NDwveG1wOkNyZWF0b3JUb29sPjwvcmRmOkRlc2NyaXB0aW9uPjwvcmRmOlJERj48L3g6eG1wbWV0YT4NCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIDw/eHBhY2tldCBlbmQ9J3cnPz7/2wBDAAMCAgMCAgMDAwMEAwMEBQgFBQQEBQoHBwYIDAoMDAsKCwsNDhIQDQ4RDgsLEBYQERMUFRUVDA8XGBYUGBIUFRT/2wBDAQMEBAUEBQkFBQkUDQsNFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBQUFBT/wAARCACUANsDASIAAhEBAxEB/8QAHwAAAQUBAQEBAQEAAAAAAAAAAAECAwQFBgcICQoL/8QAtRAAAgEDAwIEAwUFBAQAAAF9AQIDAAQRBRIhMUEGE1FhByJxFDKBkaEII0KxwRVS0fAkM2JyggkKFhcYGRolJicoKSo0NTY3ODk6Q0RFRkdISUpTVFVWV1hZWmNkZWZnaGlqc3R1dnd4eXqDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXGx8jJytLT1NXW19jZ2uHi4+Tl5ufo6erx8vP09fb3+Pn6/8QAHwEAAwEBAQEBAQEBAQAAAAAAAAECAwQFBgcICQoL/8QAtREAAgECBAQDBAcFBAQAAQJ3AAECAxEEBSExBhJBUQdhcRMiMoEIFEKRobHBCSMzUvAVYnLRChYkNOEl8RcYGRomJygpKjU2Nzg5OkNERUZHSElKU1RVVldYWVpjZGVmZ2hpanN0dXZ3eHl6goOEhYaHiImKkpOUlZaXmJmaoqOkpaanqKmqsrO0tba3uLm6wsPExcbHyMnK0tPU1dbX2Nna4uPk5ebn6Onq8vP09fb3+Pn6/9oADAMBAAIRAxEAPwDzjS7tdQVkVWzzyT9ajudLWzkDvNjA+4B1rO0PWvs8Zbydo6Vp3moo7IWw7HoK+SqKfNoetTajG7H20PmDaRwx71ZuNPhjs2YAccn86wpNYuHvFhiiYL6556fStVtLumto3ntpWUjJweK0hTlzK7CpWTg4p6nt3we+K1lp/hqKKZhGsJK859T7V7E/xItIYY5YcsrHjGeePpXx7oEsNjZ3UKRsmCpCnORzX1p8ObeHVPC9pJ5S/MeS1OrFYeakluTh6k0lG61KqfFyGR3jdTBIxwpfPpn0q34Wkk8Qav8AaHm8xIycH61U+JPg+C40G8+RfNxxIvbkVzvwZ1hLHwmTKQXR2VmPfBOK3klyRnD7jqcakXabue4z3kdjZyPIyqFGO1eN+PvjpZ6Av2e0InlwOFzx+lcN48+OD3uqDToWK2mcPIOh46Dj1rktLvtJvNLvpLld9yuDh85wTXXTouFNuaepy1q0v+XUrHrFlq41zTzqN7KJl4fyhxXBS/FVI74qI822/aVH1+lc74f8bWdrpupRbvKkKjarc+tefaXqkVkv2t5BIwkbapGe55relhmlK4qVbkhzHuHjPyNet7RoJQk0Z3BD3zj9a7v4Ua4dJ1y3trjKCZfl9OOTXh1h4h0fVIInvZGW6zyQD/T8K3dS1y4tWtJdOjYtHyshbr09ayqUZy5Y22MZ14X9q3+J9r285nxIvJJOBntUkeSwxJuIU5JGK8s+E/xOi8SaTEJDsnH3kP48fpXeX2vQ2qMGlAbbx/hXmQlOM3Tk9TvhUjJXua+5G3hTuXvjr0p80v8Ao7tg9iK8z8MfEqDW9TvIUYKIzgcnnivQv7Siksm5XoMk5r06teXuxb1sdVOd4Npj3nIRtxwAQMk15p8UviKng+1jA+aR84GcE9ParPjT4m2nhtTG775JCAFXtj8PpXiGpw3/AMSvEcc86FbSLpuPtj29KmEpe0c5HNUq81oU3eQSNrPi7zby5Zktm5GSMHtXWfC/x9ptjDFYvIEKsQOuO/qKh8ReJLDQbeC0lfJk+RQARjj6V5NqGnjSfEDPctt09m3I3X+H296vkdZe89ehyVqksOk6bTd9b9P8j7P0vWI763UoytvwRz0rSMJkyCATuyfyr5FtPiRqPhPVrOSWXfp0jYQ4A2rjv+Jr6n8N6xDq1lFcK6lJDxx7Yrz589O/Mztw2KVZNapruc1428HReJNPltZk3huhIxjmvFLz4Eh7uFQrElmO70H519QTQp5eFGGPp7GoTZxtyQAece1U8TP2TSOxxhVd3uef6D8L9P0/T0QwrLtUZLc/1roIfCtnDGqCBMD2NdTJHHHuBC54wM4zxTtsKfKdgI/vda5KTsveZUaUYtqKR+Xmk2kly/lgnfKcqtd5beEzo0IuJ2SefGBGT6/jXo3iDwnoPhrT0nNuoZAdpyfb3968Y1HWIbi+lkhEkL5yo5IPtXdGm6vvx2PAqc1Je/Z+j/zNWy03UtLujqM9uqRjkZPHpXS6H44Y3GZ3F0pGPLVdvOPpXMNrGs+IYxaylfIj6YA5o0/Tp7OTekg3tyMAA1TppWva5VKq3/DvY6PUreZtUmu7i08i3uVABznGBXpvw18cTW3gaSKzIkuI3+Rc4J5PTNeK+MfEGtXGlrFIV+bgcjPatLQdAvNJ0Nb6W6a3c8omAdxzzW9SipqPNa7DknK8o/5M+jtZ16TUPBU8lyvl3LJ83zA4Oa8c8GXU66LciRGis43JY/3zk9Kd4Xj1/wAWXaWsitFZjk5xW/8AE2zTw/4etIIE8rc+04+o61nGKptUm07djdyfJe+vy/Q8e8bTNFMNlsViY5G489vxrFvvE0K6fJDYxMHkUCR2PTH1r2rT/CNv4v1aeGYBlSNNrYPy5X/61ZPij4HzaPp7zWsXnr1fp6/WuyniIN8r0aPMlzqHM1ofP1ybybzMbiG5J4qvotjIquyhmKnIH/1q9Am8BXysZDaSR5OAw54BrutL+Dmox6fHd2cXztwxbH9TXbLFQtyp2OSMZVn+71/E8+0uCP7Ylw8ZSTOSvbGK9LuvGBEcC2kKtEmQ3P8AiKyL74c+IlZpJ08wNxwFGAPoa0tP0jWbG18o6YXX3cE1lKUHazTfqdVGq6LcNUvQluPFCeHdRgm0yVoLljlos5z3r0TwD4wvfF/iCSO6kIj2ZCN06Hn9K8csdJ3eMkvNVhZI24CsDgfLjtXoOnxx2t/9v0ObeYwd8agjjGOM/jXLWim+WG/cqMpSneNrduv3HTRfD+RfFEs1tefZ4OroBnPHrmvQvFXimPwT4Tn3uXcD5FbOeMV5KPH0sd1BdJ+7AbEiMMkcV3njbTG8feEwbZi8mNyc49Pp6VjP3asXV6I76bhGEvY7s870uO78R3Muq6p+8QHMa5HPatrw14sW/huYBCLZlGF/X/P41yfl6l4GtVlvrr5TgGM4+X6fnXK6rczJdQ3DahmKU5GFx2reMeeXMncmpW9jaydnve35lLxXqTxXrW11O805b5W2kY79vatbXJX/AOEdsraWTzZV5bdwTz6iuZ8WagLzWlfAKxgYOck5Aq/p8esa84msjvWFc9F/z2rea2cmkcFO0VJtb9v11JdWgufEFsI3Hk2yBQuBnGe4/EV7r8DfiJGtlFpF1KHuImI+YEZ6n0rF+G0EHi/SWF1bjzojhl565I/pWf438O2vg9JNVsz5F3GchuT6Dvx0JrjlbEvk2aN40alGP1iLUu/e3ofTkeqJJB8nQHH60kmrRwzdQMA9eTXyL4c+O2sXi+T5RumXrggfiBitVviHq2rwyypd+W2PuYGQe46VgsK4xkpu2p108wpv4U2/Q+nrrxFbR72Rl34HOa4y++K1rDdSJ5h4x/D7fSvC/DvjS5m0e9Wa7b7S2Fj45znkV1mi+C9Qm0uCSWLLtkk7h6mppwpUl76udEsdOpK1NW/ryPPNS8QW3xA0dLND5F2nVCe+c98elc1beEdR01QZLASsD/eGDXp/xQ+DdxHeLqOkJ5c65dkU4Pb3rG0a18X3si27LsQjBZgvArqnFJL2drHJKhJyvK/3XRy3mlF2Sac0ZPB2t3qrdbozGy2fbjc3WtLxx4f8QaPfeZcSPNC54eMACsuyuNPutPd7i7kEqfwYNXGmvdlFX9LmqjCGjevokcjp16934ysUuY9kAk5QngcV6x471OOS606zgAK7vmVc4xxWL4B+Fdx42un1NFaKxVsIz9e/v7VtXXgPU9B16eUqXKlTHJnIPHPeipVp+1lyu7St8yac3CL5Op7Z8PvD7x6StzKmxnXI4zgYI/wrzP46TSxSabFGvmKZWLKO3Su28GfE611C1WwLKt190/Kewye3tTYfh7c+IvEX2y/XFsGOxceg68fSvNpRdHmdWOpzXlKny0veb89jR+EvhN7e3+1SJiafH8PYZ969POgi5sdhVtuAP1qxoukrYwhUwpAAC4rZhhDQ/d5QA/XmsIK6lK3Y9ejTVOnypHFf8IfbyNI2ATnlSv1rUtfDMaWyR7dpY8celdEsaNM6bVJ47YpyRiSNCQR8xFFtHoddKVldI5J/DMbO21QWPNV28Lx7WG0bj7e9dnDZq8uFXnjkntiomhWTAC5XntjvWsYpTgrExel7fiebat8PLTUf9fEHGCM4xivG/GFjJ8O722FhABby7vMfOc49j9a+rLq0O0AnntXB+NvBFt4ijWOeLzAqkjBPHSuuhUUZtTWhy16XN71NLm7nyx4v8T2mma3FMi7kmCmSMHpwK930PxrpS+FVuY3UR7c7eSB7Vz2ufAmx1TzjCnlyEAbsE44+tV4/gs9jof2ZZW8xR8zBcA8+ma9DFRoVOV2aaR5saWKjKUuRfeeQ/FXxxD4k1wIHItQ4HQn/ADzVyx8MjxWzR6dC0cSqv6D3r0zwl+z9bW9y818nnkkHBHA/I/SvXND8A2ujKI7eBY1K4z/PvXHVxEebkpo6PqtWvZ1FZfj/AMA+SLj4d32n+JII9Qk3rIcKGUccexr6C8H/AAwtvDdlFsIZphncwPHH1967m88AadqV7Dcy2+WjOVYkjtg10eoadFbW0KbQOvPpiuGtXlOpFG9HCRptu1/mzyz4d6Kthf6o6r8pYcA/WuG+P2uR2sUGnRIrzTtgDsB8pr0vwZqtrd3eqQxgM6tgjH1rxf8AaAjeHxNpcrnEQYj9FrqwtvaSk1rY10VK0XozS+HvwxNjaR6nkETAADH1964PUmfw/wCJtRtmP7tfmH4j/wCvX0l4NhE3gOBwy8AY/Ovnj4oaebz4h3EUYwWRcn+98oqMJWdSM3PucMKcXD3FuQ/D8f2n4kt4wMp5mcdq+1dN0JfsMPyqPl9K+TPhvpMem+NraJ4/LRgCD+FfZdjcILSIEqDjtXmV53npqSoqUm0YN5pKTclEJZT83eqLeH4Y1wFAz17VDa+MbG7m2pcKdwPLDFadxrcBtyUdZAFrtqU5KSPUjU5Y6nOatodvOrpKqyDtnoOK+cvFnwhvdW8ZoNMh22jH52BGBwPf616lrnxUebxJJYWiq0cJ/ePngcccYrq/BerWmoQmYyAyMcH261pOpPCqy6mE5060eV7ehe8FeE4/DujxWinCqOTjv1p2raTDfTCHAYE44GMcVr69qUem6e83m7dg7j2rlvhf4wXxld3DhNixvjcefXnp6iuShSabmNTpw93qyn4a+Edho2qG4EZdlYkBsjnGM5z716VZ6eq+UuMMCwLA5rRitx8xxjnGTzjinplVQD5sE7T0ra7lq2yqdOlSuoII4RuBOA56kdvepkI8reh3AAZOMd6evJIByvBB70xcrDjIwMZHrzVU4L2ctextdR0vp/XmThlX5WUNgjt1ojJEONwLZOfeiGQtJKQAeV4FIh3RgJ8x3dDxScbXfYuEly6f1+IyOELMMt+X0oKfOvzckkU2IkTABvYnHSiRmypHzBc5/Oml70HcyVktR7KgmxuDgEg8VUa1HmSZHCr1xV07lw23AzyKZGTy33xsIOO9Cp3k3ccpaJmY+noWkZVBXAOPXii609fJkBX0Iq/AoPmtjazYJP4U+ZThip+U4z7V1YiL91vsXGo+R2/r8ShHpsUKvkfKMdqd9kTzFyox1zWkFaVSEPXAxTNoVV+bJK9RXFy2qOz6FSaaTf8AX4lSPy/nYgE4596y/EMkawRrnDZPXtxWszMjMRw2OleafF3xHc6HpLXUKGRk5xxnqKIUnUmrMzlONKDcjg/hsxXxXrjlvkLKBkfWsf4/6St94f8AtqcvbvkHvjjj9K5/4e+MrvUrzUjEpWeTGzge/r7V1HjWyvZPh/ei8bzLjBydo/vCu2H7utdvc86hWj7OyTa720/MX4S6+0mirayS7kZcj25rgfHVwtp8QTISFVwAuR1wtc3ovjh9Ba1WMHaqkbs8fy9ayfFWr3eoaha6pdOGUFtq8Z9KdPD+ylJ33I9tCnUfJdo9Q8ReKLHRbbTryMhruPPAPJ6D+temaV8b7T+zrffKFfbyOP8ACvknU5rhrmMPlgeULdOlb9rFC1vGXugjY5XniuGWFhGKR5UXiJzcoWSPqm5+HNv8jRF4GCt8wP8A9euS8RW2veGLWWS3la4hVc44B7V7rcWoeQMPl4YYNZWraRFchiyjBX7uM16arPnUm7n0qprlfLofI3htR4k1hvOkeG6uWPmNg8YBrrtY+1eC9SsrW2uWWJsnpjJ6/wBa7Pxz4Jg0+N7uziWK4ibepA5YmuBv9aj8d3mkQvEytG7Bn7en9K6a3vXqvZo4KkIw3/U7z4j63dyeC7fygzTTqF4A9RXZfBPw7Noukwu67GmOSTz3P+Na8HhKyvtPt43iVlgHSus0mzFiqIOFGAOOOleLTrOdoN6IVCD5vaNmrbkL5m3jn71SD70ZH3ST8xqFWHlszAZ3feq2km1UBAY8kelap3ad9T04ytfURdpYsG2qfvYo3IbUy9BtHbpzUasqMwKZA7Z/OljdXtCAAuQM8571rTfLGVnpoVzK1m0TQ4V3BBBJHzLSW6osQxyC2Sx+tNWTarkDuPxoiKxxsvq3NZuejjcuE/duhIwGvBlhgH5T+FPZgyjknII6e9RxkeZgDaB3o3MuCH2nOcYzRCVpQdzFTfLuO3Hcu4blBPXvSo3lseOi84pI0KsGIOGJPNJ/EW54XmlfXVj531Y2NxH5q7dwOM57DH/16SRfll288ioY8h3GCRxj8utPupCqvlcgkHb0zXo15uSSvpYqLsnqSxSKvOSXyvGOvWoGnCsQBw36Vhal4wtNLkZZZRHyBzzXC+JPixZWNi91GwcR56Hn09K4oxk61+5lUqqEU5M9MuLyKOGQsw24696851/WNP16+n01GDsvVSpx0zXks/7R32edjcRbYH5Vgc5/IVV8D+OU1TxrJP5G2K4G4Nu5OFPtRKE6S5pHIswpSklGW/qct4w0e+8A3BvrOQDY27jHzZ4xz9a3tB+L9n4g0sWt2+2Zj8yYJHXpnHtWB8Wr251bxdHYJIApGT0PGAa8rt7qLw1q0w/1jI33eR2r0FRhUjzS+IwU/q/NOEtH0Z1Hj3V7TUbg6dYRhVjO4soOecGsrWYrNLO2kSUM8K5dee9Zl1ePfM0lrEUkm455xjvmsKNr26bydhdmYg7jjpVNRSXRHAq7qvndvx0Ojt9YGtNJJtwsAChq1YbYSRqzjLHrWDY2LRF4oI9ru2CCc9K6S11O1ht0QyYK8GvNkpVP4Z2ScNFJ6n6C3Ee/bl8FQ3y+lMuogvK45Xg/hTuPOTcNgwcZOe1LcRFdzkBgB6/TNEo2mmke2r+zukcn4o0lblXLFcZ53dOleJeBfhzcL4mlnkcPZxSlo06dc5Oc/SvevEh+zWk7Kd2Dn5hzWf4L08NZLwNzbiePrVznLkUF1MZ041mubodVplqtvCqEZwMHHrjPFc5468Zv4W0vzwu5QeAfcgenvXXxwskIZeBjGD9K5vxj4Ti8TWMlrK4CHgN1x0/wrLDxi6ic0VUjU9nJUviOc+GPxGHjS1nymx425TPI6+3tXp9uctHhsqwPevPvh/8ADe28HwyrCTIzNyTn5hz7n1r0GGHChtm3rxVyUZz91aGWHp14071VqPCt5kmWO7o3NJt2Wrd8BcfnThhWkI64wT60xVZowSOwzz71MV+7lddjd3cdgAJLr1C4znvUqMGjCg9G9OlQMoYyBSw+78xPX1qOOcbQQwHNc3V2LpRfJsWo5Cs8gA4P8QpqyLhRzgfpz1qot8vmDDhHHII78U6G68yNTncwyM/jQpcsoaGcfhehc8wBsE/eP50+Vx52eg24zUKyMOCdwzxTtx3OygZ2nBNPmTdkKxXWQ/vDnb0yfTiqusXhhsppM4IAA5+lPY+V5yleUx/KvJPjZ8RJPCOjl4F8yaQ5C5x0I/xr1ZRc3CEY9AclSg3I8c+KHiC81zxpPb2/mSiPaBGvA6DvXG+JNN1zTbWNDJsE3HlcN6cVseGviNd67ql5MbNQqbcybh1wa5HxV441K68TRebH5SIcryP8K2SqKrZW0PE5Kck6km38rf8ABLjeG7bS4Uj1AsZWGSQCQvQ/4Vs6DND4Z8XQsWLW0gwrEYx8v/16vW3jSO8ttmo2wmhbHOcY/L6VP8RIbS+8N/bNOKnyRnaD6kV5s+epLlkjKnRTTqQS09f8zL+IXh3UpvEC6zZOHjOANoGBwB6+tYc3w417xLNDcLa+VzhiSOfep/Bfjq4sWXfG1xYD72SOOteqzfFvR7bTRKq+Y/OFyf14oqVsRH3IpG8JUqqac2vI8c1yxudE05rLUStvOv8AqyADnn2rl9ZvIbOOA2uDNGCXK+9drqD/APC19awF2CE8HrjP/wCquO8faA/hW+t7BB5gcH24/wAmumnNSXLLdEVITirrbub3gO3h1SWeWU7UCbw2Omc1kTacJpneN2KFjgheP51hW3ii40u3mht18qJ1CttOTXUaNqGgNpluZ3/e7fm+96motOndx6mNS17ztf1sfoc330DfMuGOaW4bdGOMgjp+VOVjJMiggMysMe1PmULIQBkYBBrCVuZPl01Po4p+zdzkfGzFrWSPPzOQB79K0/C9u0FvCm0kYP8AwGqniSz+0zRqTk+Z+XFbun27KqBQSCvrxRWacopR6EQT5r2NUKWAUf7p9uKjW3+bJ4JPSpfnGE9R8y+vFKqt5m48nNZU372sTflvvErQxhWIDMuG69qsRnfEgLZxu6USRgNk8hjxTVXYqbATyw64rSS95WizNLV3Qw/feMnjjiovMaOAsGAXaOT9aXa0kpOMH+7nNct4u8UW/h/R5Z5ZfLXYPvexqY/w5RcexMlyx5kjY1XW4bGF3kkARcde9fP/AI2/aIGl3UlnaR/aCpOG3AD+VeefEX4vXerSPHFcNh22qqdhn6Vi+GdNXxPay2t4gR8Z81mye5rtp4eEFzVVucFSUpRUIaN/P/gI6vQ/jZ4l8Q6n5NvGBGenIPb6V7D4H8Xa79nP9pQMAuecjkZ9q+ftM1C6+HuqK4RZrbPOAMgY/H1r1TRfjZpnlAupjc+v1+lcmI5+dckPd8jgoRlFv2lRpro9j2bTvGVvdOiPLskyQVPGOa6S3uRdfN5gb5Sc18seNvHVjqVutxZXvlTIxJYA/MMjmuw+C/xNbXGmtZpxKYlwTxyOT6VzezlFc1tDu9slUVOS+dz3W4mMNvI2drYzjr2r5O/aG8RNdauLVIC0kXzDB9QK+m21IXMOI8HPXB7Y6V5D8WPhnL4nuFuLdvIb+I49h717NGpTjJSlHojrq0pVaX7v8j5EstSm0++uESUs7MPMjx+XNaureFNSmvbe8dWKP6kccVpfEDwhc+AfEC3SjzVlYLnjBwB/Wu38zVLqximlgWSBh0yPx6V016ijUTitGeA6T5mpNnGW9vNJbiNtyuBhmHNb0fh2+trOUWz+dHMvK5AHHeq/2jbM4gQxswwydc8VNY6lL9pXyJWikjOTGeQeK8ycanMnY1oxXX8B3h3WdM0Dwvd29wi/aEb7vfqeKPD9vZeKNNuRNCIiOflJI6//AFq4zVLc+JNSuJbX1/ee/H/1qteBbi70v+0bVgVTgDdj37UTpRpxuviRca3M7Jehr/C6JND8UXKIWNuwADDp0P8AWs/xxqB1zxQI2/gBHTO3iu/mtNL8J+HI79f+PlgcYPv/APXrnPD/AIYh1+GHUmwJWZmkHtzjnNYRrJxlUcbIJuUbQ/A4rXPB7aKzBk83zAAh6ZJx/jWjY/CfUZLWNgFAYZ6//Xrq9f0i8uvECb4vNt4SpRcgdhXqGi6vZDTIAQqkAjBznqawrYmcIrlVxT9lKVpI+jFhKXAcnacHI6irc8ivHwTgjlh2qvLcAMFbrtbPI49Kx9Y8TW1nbyyPMoZVxz610znPmVn3Pd5vc0GX5NzqUKK2Nxzj8K3bG42xqoBUdK8h0H4lWOreKJUilAbOFXB5wDXUXHxCttN1OO2lhY7x95enTOazq8/OndkQqQtrLqei72VmITLf3u2MU6OQmTHQ5B/SsjS/EEOp7ljfcMc45HStWO4HmLk559PanTk+bVmylFvclkY7ZcY+U5Of6U3L/e2DYSe9NDNtJIK9T65oWRn2ByWHzYxW3O7q0nccWpXVyvcTeT5iK3TGa+UP2mPFkkLW+nxyE7vvHP0Ir6l1Jv8AR5MHPQ5r5B+OWhiTxmGmJ8mSIYBGegFdeClpOculjmxGkUeGs1+NSQtES/r/ACrs/A11blpp7u5eBgPuevUUzUQls1rM+0RM+GfHYV0Vp4S0jUHGqwS7oY1y0eCCe1bVq9373U8zWUve3RQ22OqWcrW80lyu7sD1psWnRIyDe0R9cZpdJ8aS6fFPDpmm4Oem4dPxFXLz4hfa4ljjsl8wZ3Bu+T9KxnztpJX+ZzuVG9m9fRif2BayRMpuwXPbGPxrQ8LWr6LdM9nctDI3TjP86b51jtie4sygb0J/p+Fa0lno+pWjGyuzb3Oz7pBrminGVtfzNakadVWXTz1PUPDev3Wh6T5uoXgnOcn5R0/D8K9F0bWbXxFp80kWHQgc9MV8r+GZJf7Saz1m6baOzDg9fT8K9v8ACutWdrqRsrVg0bJnaM44FZ4qryqNm3520O6hXUI8q289zlv2gtFiHh9pwis0JyA3HcV5f8KfiAlpY/ZtTUbCxCs3TqfQV037Sni8rGNKUHErDdJ+R6V5HFJBoFvbxT/vYZASzDjHtXocjnTSluc9aouf2ken3HfeOvFVsrSRaXboZWA/eKenAPQ1x+l+NE02yki1CPGo4Oxh9fbjpiuaOqeTqDGNhLahsn14HH9KsXSz65eLO8ZMRPO0dBjH9KXs3C0Xsjh+suU3JPXtodVY2c+myR3cPywy8yZ5GMH/ABrmvEmrsNWb7A4IlwCVHHT3rprVmmt0tkuGVey4rM1PSp9In8wBZCpzkkelZQalJxZpKM5rsjH0jUtR8RalaWE87SKH2mPA/p9K9r0jwvBb6oljbXX2cEfMpXPb615d4N0uZrG411xi6WRcL6ckV65HpMOuQ2l5Awt9R2845JPTufSuSvUWsLjpwgkmlzer1E+Jui3egta6jagtGvD+/T/Gsmx1hPsqbo8Nznr6mvbbrRv7S8OmC92s2wZB7c//AFq8tuvA5s52hR1ZV6Ej1GfX3rCm1Omorod1aMotOK907L4m/GyLw7eCysg1zckHEakj068e9eE/EHx/4g1iExz3PlI2AyqvQcd8VXs9WvI9ZNzPGGkmDFmYg/pTfiFqmnTaRDbxHN2zD5QDluRXsxSp1Ekvn/WxyynUqaylZdtjrfD9i+ieG7XUtJiL3pbDSE5zz7/U17vodvd6p4btJL+AfaGDA5wCRXiPw/tdWtJNGtHbbAzEsMAgcE19S2Nnvto8AH5SevWvKry/eRV0+pvho80vclZdjxL4V65d6B4+utJmkYwlgV3HJ+6TX0ZZ6ipULt35x9eleXzeA7K38VLrEY8qcH7mDj7uPXFbvhexvodfnnuWJhJG1T9Kqpy1Kt76WOijGpSvGT6nfMUZW2jhuAuetLayBlXadoBNV/MC275Xbj8ajjk8tRu7E5alypNWZ2Rm9dfwIL/azOgXI/veteIfGLwRFqn2W6kXY0ff8vevZ7jUIo/NcsuR3PNeQfFzxnb2+hSpAwadioA7jkVrQUpQmlK2xEkpJc+x86+LtFv7GOS0SEyjAaI/iK4fSfGF/p9yyJ8k/wB14yeG5r6o02GPxB4Tt5JWX7Qq8kDnmvGl+G1pa+Kry3vF4bDLIMn17ZopYqm4tT6HA6TrPR6mR4R8bWkOy4uYQk5JB647+1UdS8URzaiywWKwwyMfm3ZJHqOP85rX8ReD4NMYJKQIuzgHGMf/AF6x49HjXy9p3r64zXVFQbUuUxn7SEOSfTyRvaV8QGtdNaAQrOsWcszDJz25qGXxXp+qWZdLcw3O3+Fiaxrzw0bloVitXC5+ZhkV6V4d+Gul3lmWjYwuqYYNnOfXrRGVKjPVXuc9GNad27Nf15Gj8K9Jh8WaPcC7TdcHCg9CvXFekeDvDtt4ZS6aX5p148xyRgen61wHw1gfwn4iuIZbkS20uNrdB0Neo/ESwvNQ8PS/2WmbkrxtPXpXHVSnUUXKx6VOPue6ldHhnxas5fHfiiOztFDQR/M7k9Bj/wCtXAalodz4XvGNxbNewSYACtwOP/r102oaBr/hu8ub0syLgbsgN7VxmpeNtS03iJvtLNyMqMKf6169GnKWkZKxwVakebld016fkWdStXg0+Ro7BkMuSNzdMYrpfAOhXV1o85ciG3YZ8w4O3npXPaD4z1efU7e31FVmiuONgwO3XiveNJ0LS/C2jyGTCpPliHzx/wDrzXNWi6fLB6v7whH2k3KLsl30/I8gl0u1hyTOx9G2nrWbNrFrps3kXEBlMxwJGyMY/CuqmeTxRqDQ6VaFbdCQZs8H06/Sn6to1rNf2kV4wmEBLSnGB04qINRbUtWaU29ZrZfd+Jz3gu4kk1i2gx5lrLJtZMdcZr17xh4L/sm8j1e3YwxxKGdFPQYx61D8LvBC6hqh1Y24gtkI8mPvzkE9favTPiZbpb+H7kYXIiYd+elcDUa1Rxi/I2hShUXM1ocn4k8eKfCf2nTwPlQBhu6dPas+z8T/ANoWsU5iLF1HIxg44/pXnnwxtYtQN1Y3jOsUmCitnHU13n/CGalp/wDo9uS0C/dOzsef60ez5FyR6GdRVKjvfQ4zwX4csb7dNcRtNIOhZv8ACuJ+INrE3ja0tggSIEY29RlRRRXTCT9pLXuFOK9knbU+m7e3i0vw7byW0axuqKQcZ7V6L4VuHls4C53FlbP60UV5dbaLOunvYzvHV9Lpti0sBCugG3PPpVnwTfS6haW8k+Gck5OOvWiiqj8CZ2x3sdcW2oQBwT/Qn+lYHiK8ls9JeaI7XAJHGRRRW9P4iGl7x89XvjDVbpbsyXOcnpjiuFtVF1qEBlzJuBJDE4zg/wCFFFdsvdTsebTSdW7LGra9e6cttBby+XGT0xntmtvSNQl1cwy3O15GQEsBjsaKK8ytFKKdjGm2sRIgms49SuDbXA3x9Pfp/wDWrY8OeEdKt5k22wPzn7zE96KKlyaUUmd1KKnrJXZb1q+k0+PEARAG2gbQay01i42scqN6nOFxRRXfGMU1ZGleTV0npY421uXk1TGcLtDYHY19B/D2+l1LQVec73BwG79aKKwxfxROXApamrrukWl3plyZYg46YPSvmLVtCsY/FjW3kAwKMqhJwOAaKK0oN3kdWMjFxV0UrfS7ax8VWbwx7DvI6kjoa6bVb6fUdWtoJ5C0TDBUcds/0oorolJ8t762PEq+7SjFbM6fULePQfCNytkgiAAOep5Of61hTWMXmaNBj5Ll283nk4FFFckW/YtnXJLlt5H0jo1jDp9miQLsVNqr7VwPxRvpptZSxLYtplIdR7AHrRRWOFSsd1Rv2RwFnpcFpJPFEpVVwRzyM+9dFb65exwIomOAMDiiiuiGq1MafU//2Q==)Uma imagem contendo gato, olhando, preto, branco

Descrição gerada automaticamente

Figura 3.1.3 – Amostra 1 após ataque de nital 3% ampliada 500 vezes

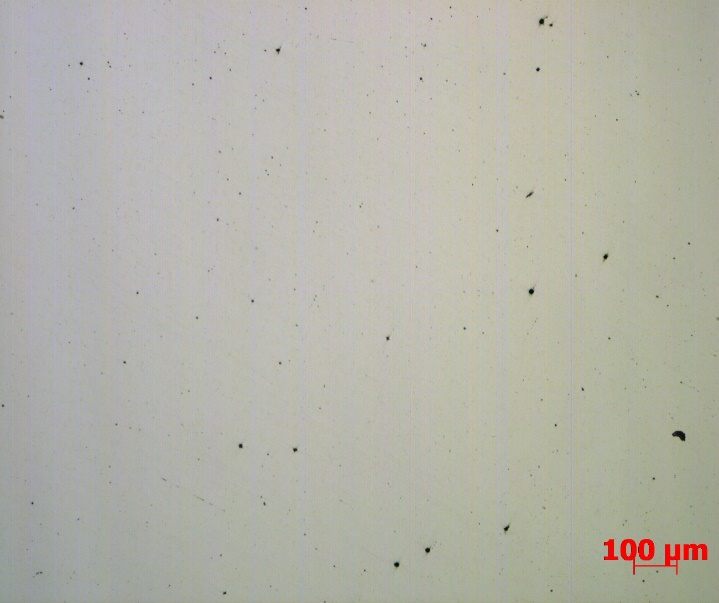
São destacados dois grãos, cada um com uma diferente microestrutura, os quais aparecem intercaladamente na amostra. A primeira microestutura, do lado esquerdo da imagem, é a perlita, que é caracterizada como faixas intercaladas de cementita (linhas escuras) e ferrita eutetóide (linhas claras). Ambos são formados na mesma fase do diagrama ferro carbono.

Já do lado direito da imagem, é possível ver outra microestrutura, a ferrita pró eutetóide. Essa é formada logo após a austenita e esses grãos são formados nas bordas dos grãos de austenita, por isso as microestruturas estão “intercaladas”.

3.3.3 – Amostra 2

Para a amostra 2, é possível ver na figura 3.2.1 o corpo de provas antes do ataque de nital 3%. Nesta figura é evidenciado os mesmos buracos que antes eram preenchidos por ferro oxidado, estes deixados pelo polimento.

Figura 3.2.1 – Amostra 2 pré nital 3%



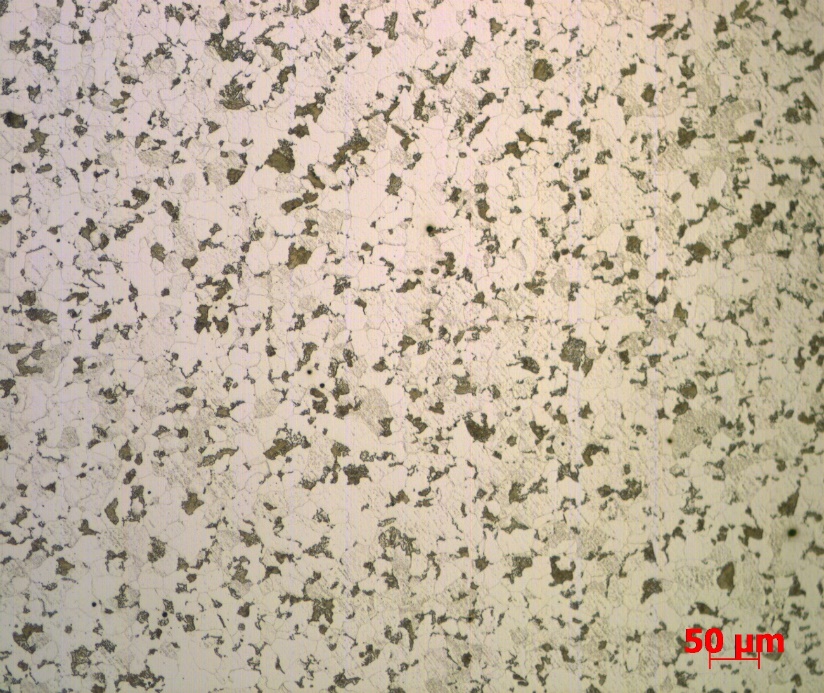
 Agora, depois do ataque de nital 3%, é possível ver o corpo de provas na figura 3.2.2:

Figura 3.2.2 – Amostra 2 após ataque nital 3% ampliada 200 vezes

Como é possível ver, as microestruturas da amostra 1 continuam aparecendo, porém com menor frequência de perlita, indicando que esta amostra contém menos carbono. É possível tirar essa conclusão por sua aparência mais clara em relação à amostra 1.

Por fim, veja a figura 3.2.3 abaixo, mostrando a mesma amostra ampliada 500 vezes:

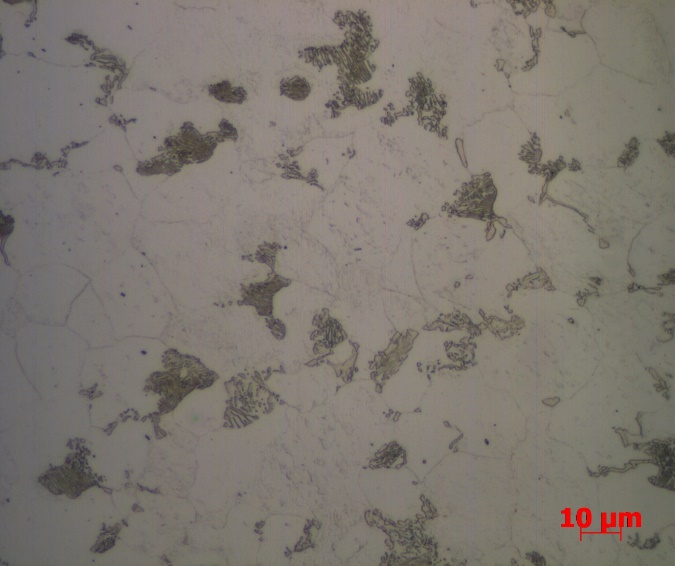


Figura 3.2.3 – Amostra 2 após ataque de nital 3% ampliada 500 vezes

Como é possível ver, as mesmas microestruturas da amostra 1 aparecem, porém, como dito anteriormente, a perlita aparece com menor frequência, indicando ainda o fato de que essa amostra contém menos carbono que a amostra 1.

3.3.4 – Amostra 3

Para a amostra 3, veja abaixo a figura 3.3.1, da amostra antes do ataque de nital 3%, e a figura 3.3.2, a mesma amostra após o ataque de nital 3%:

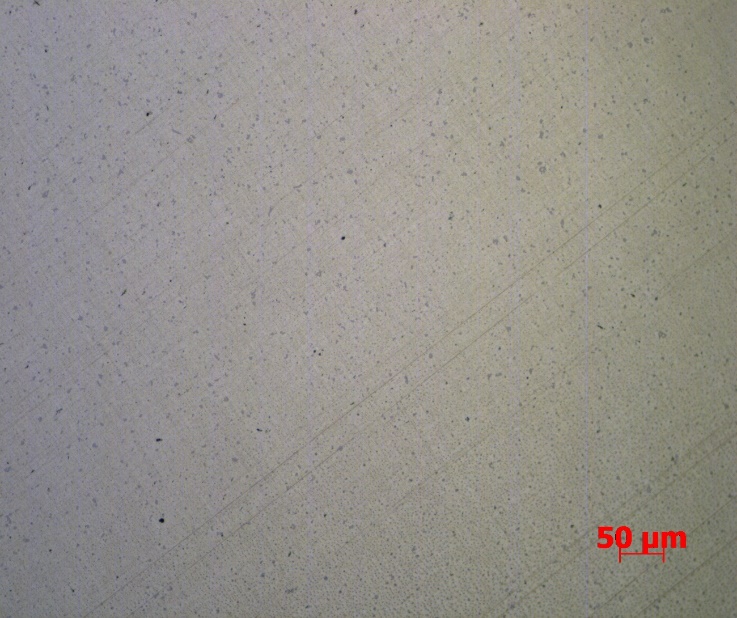
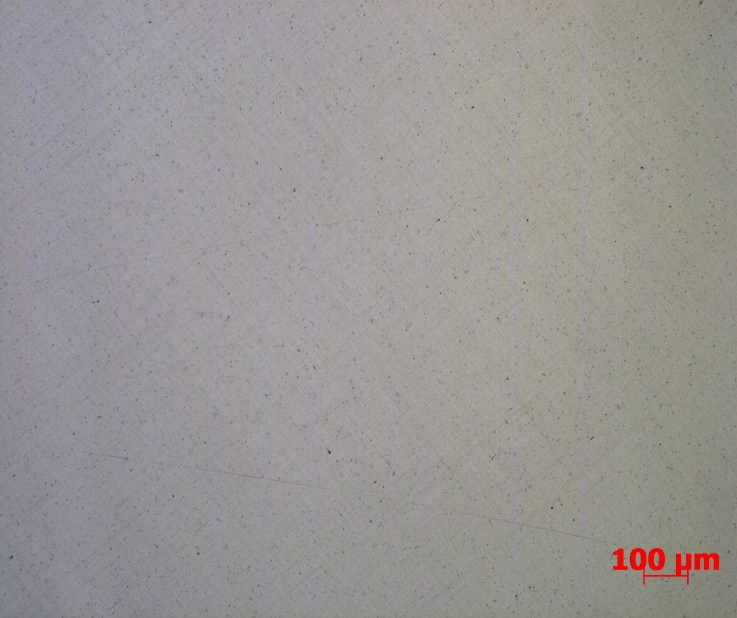


Figura 3.3.1 – Amostra 3 antes do ataque de nital 3%

Figura 3.3.2 – Amostra 3 após o ataque de nital 3%

Como é possível ver, a falta de mudança de aspecto do corpo de prova leva a concluir que esta amostra não se comporta como as outras duas. Uma vez que o alumínio é um metal que não reage com nital 3%, é possível fazer uma previsão de qual metal a amostra 3 trata de ser.

<https://www.estudegratis.com.br/questao-de-concurso/443675> imagem diagrama de fases ferro carbono