

[illegible]

14.07.2008

Tarihinden 18.07.2008

Tarihine Kadar Bir Haftalık Çalışma

From _____ To _____ Weekly Service

GÜN DAYS	YAPILAN İŞLER WORK ACCOMPLISHED	Yaprak No. Page No.	SAAT HOURS
Pazartesi Mon	Orientation, Presentations Guided Tour of the Plant Waiting in the Batch-Furnace Department		
Salı Tues	Analysis of Raw Materials and their Provision Information about Glass Composition		
Çarşamba Wed	Analysis of Batch Preparation and Transfer		
Perşembe Thurs	Imperfection Control Receipt Calculations		
Cuma Fri	Analysis of Furnace Structure Observation of Furnace Operation		
Cumartesi Sat			
Toplam (Total)			

Öğrencinin İmzası
Signature of Trainee: Nazım Erdem Çalıştığı İş Yeri ve Kısmı
Work Place

: Anadolu Cam Topkapı Plant, Batch-Furnace Department

Kontrol Edenin Unvanı, Sayadı, Adı
Name of Controlling Superior

: Hurman Fırın Sefi, Kırmızı Cüneyt

İmzası
Signature: 

21.07.2008

Tarihinden 25.07.2008

Tarihine Kadar Bir Haftalık Çalışma

From _____ To _____ Weekly Service

GÜN DAYS	YAPILAN İŞLER WORK ACCOMPLISHED	Yaprak No. Page No.	SAAT HOURS
Pazartesi Mon	Scrutiny of the Forehearth Imperfection Control Information about Control Systems		
Salı Tues	Analysis of the Blank Mold and Auxiliary Parts Guided tour of the IS units		
Çarşamba Wed	Analysis of the Blow Mold and Auxiliary Parts; Dealing with Production Planning Demands		
Perşembe Thurs	Observation of the Plunger-Scissors Mechanism and Linkage Systems involved		
Cuma Fri	Firing Order Calculation and Verification Analysis of the Scrap and the Distributors		
Cumartesi Sat			
Toplam (Total)			

Öğrencinin İmzası
Signature of Trainee: Nazım Erdem Çalıştığı İş Yeri ve Kısmı
Work Place

: Anadolu Cam Topkapı Plant, Production Department

Kontrol Edenin Unvanı, Sayadı, Adı
Name of Controlling Superior

: Ahmet Soraq, Üretim Sefi

İmzası
Signature: Anadolu Cam Topkapı A.Ş.
Topkapı Fabrikası

28.07.2008

Tarihinden 01.08.2008

Tarihine Kadar Bir Haftalık Çalışma

From

To

Weekly Service

GÜN DAYS	YAPILAN İŞLER WORK ACCOMPLISHED	Yaprak No. Page No.	SAAT HOURS
Pazartesi Mon	Guided Observation of the IS Machines Analysis of the PB Process		
Salı Tues	Scrutiny of the Pneumatic IS Mechanisms Analysis of the PB process		
Çarşamba Wed	Analysis of the NNPB Process Heat Transfer Considerations		
Perşembe Thurs	Observation of the Hot Coating Unit Working in the Project Department		
Cuma Fri	Scrutiny of the Stress Relieving Tunnel Working in the Cold End Department		
Cumartesi Sat			
Toplam (Total)			

Öğrencinin İmzası
Signature of Trainee: Nazım Erdem Çalıştığı İş Yeri ve Kısmı
Work Place

: Anadolu Cam Topkapı Plant, Production Department

Kontrol Edenin Unvanı, Sayadı, Adı
Name of Controlling Superior

: Üretim Şefi, Ahmet Sarog

İmza
Signature: 

04.08.2008

Tarihinden 08.08.2008

Tarihine Kadar Bir Haftalık Çalışma

From

To

Weekly Service

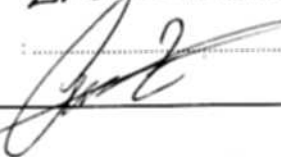
GÜN DAYS	YAPILAN İŞLER WORK ACCOMPLISHED	Yaprak No. Page No.	SAAT HOURS
Pazartesi Mon	Working at the Raw-Sort Unit Manual Control		
Salı Tues	Analysis of Inspection Machines, Palletizers, Shuttles and Shrinking Machines		
Çarşamba Wed	Working with Quality Templates Information about Quality Mea- surement Systems		
Perşembe Thurs	Making Quality Measurements (Volume and Residual Stress Control)		
Cuma Fri	Working in Mechanical Maintenance Final Guided Tour of the Plant		
Cumartesi Sat			
Toplam (Total)			

Öğrencinin İmzası
Signature of Trainee: Nazım Erdem Çalıştığı İş Yeri ve Kısmı
Work Place

: Anadolu Cam Topkapı Plant, Cold End Department

Kontrol Edenin Unvanı, Sayadı, Adı
Name of Controlling Superior

: LİLLİ ZENGİN ÇABUK

İmza
Signature: Anadolu Cam Sanayi A.Ş.
Topkapı Fabrikası

GENERAL REPORT

③ A Brief Executive Summary of the Internship

The company where I accomplished this final 20-days summer training is Anadolu Cam Sanayii A.Ş. which constitutes one of the four main branches of glass production under the roof of Şişecam Group. My workplace belonging to Anadolu Cam is Topkapı Şişe Fabrikası (Topkapı Glass Container Production Plant), which is located in the organized industry region of Davutpaşa on an open area of 1.100.000 m². The closed area of the factory, a layout of which is provided in the following sections, is 129.000 m². Anadolu Cam Sanayii A.Ş. mainly produces glass containers, termed as IS products. Examples of IS products are food packages like jars and pots, drink bottles of various types and cosmetic or pharmaceutical flasks.

There exist six main directorates in the plant, all of which have several departments:

Production: This directorate is devoted to affairs regarding the very production line. It consists of four departments, namely: Batch - Furnace Department, Production Department, Cold End Department and Mold Repair Department.

Technical Services: This directorate accomplishes the secondary deeds apart from production. Mechanical Maintenance & Repair Department, Electrical - Electronical Maintenance & Repair Department and Project (Auxiliary Units) Department compose it.

Quality: As the label implies, the quality directorate consists of the Quality & Process Control Department and the Environmental Engineering Department.

The remaining three directorates are Production Planning, Accounting and Human Resources; which accomplish purchasing & storage, finance & budgetary control and labor provision & education, respectively.

Handwritten signature
Production Engineer

GENERAL REPORT

As to the major activities carried out during the 20-days internship period, I analyzed in detail each and every step establishing the production line. For each such production step, I learned the input materials, intermediate products, processing of these, and the outputs. I got informed about the construction of the IS and auxiliary machinery in full technical detail, about the parameters to be controlled during the operation of these machines and mounted control systems, and about the working principles of these. Numerous times, I toured the whole production line under the supervision and guidance of an instructor, building on the knowledge I obtained a broad vision of the industrial activities present in this factory.

I initiated the analysis at the very beginning of the production line, namely the Batch-Furnace Department, which is related to the materials science part of glass container production. I dealt with the glass composition, the provision of raw materials and the optimization of the melting process in the furnace unit by utilizing phase diagrams and making numerous composition calculations.

I spent most of the internship in the Production Department, where I observed how molten glass is formed into a bottle or jar having the desired shape by complex machinery. This process, similar to casting, involves a great deal of dynamics, heat transfer and strength of materials considerations as well as a network of control systems. The tolerances are mostly narrow, which requires a very smooth and accurate operation of the machinery and eventually a perfect control of design parameters.

I continued the analysis through the remaining steps of the production line, observing one by one the functions of these. At each unit I visited, I also accomplished several minor tasks given by instructors and supervisors. Among these tasks are composition and design calculations, quality tests requiring the use of computer aided measurement systems, speed and efficiency calculations for some sections of the IS machinery, review of the computation of product thickness based on a given weight value

Anadolu Çiğir
Tophkapı Fabrikası



GENERAL REPORT

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⑤ Description of the Company / Institution

5.1. The full title of the company where I implemented this summer training is Anadolu Cam Sanayii A.Ş. . It belongs to Şişecam Glass Production Group and establishes the branch of glass container production. The history of glass container production in Şişecam can be summerized as follows:

In 1935, production of glass containers with IS machines was initiated in Paşabahçe Plant and continued until it was delivered in 1969 to Topkapı Şişe Fabrikası (Topkapı Glass Container Production Plant). In 1975, Mersin Şişe Fabrikası was bought to participate in production. A technological breakthrough was accomplished by the utilization of NNPB (narrow neck press&blow) manufacturing technique in Mersin, 1988. A new plant in Gayirova was founded in 1996 in order to be able to fulfil the growing demand for green bottles. In 1998, the Georgia Mina Plant commenced production. The year 2000 witnessed the gathering of Cam Ambalaj Pazarlama A.Ş. (Glass Container Marketing), Anadolu Cam Sanayii A.Ş. and Topkapı Şişe Sanayii A.Ş. under the roof of Anadolu Cam Sanayii A.Ş. In 2002, the Ruscam Plant began operating in Russia. Also, the Pokrovsky Factory was bought in 2004 to grow in Russian market. In 2005 and 2006, the Ufa and Bursa Yenicehir Factories initiated production, respectively. Finally, new furnaces were added on these factories in 2006 and 2007.

Mailing Adress: contact@anadolucam.com.tr

Web Links : <http://www.anadolucam.com.tr>
<http://www.sisecam.com.tr>

Anadolu Cam Sanayii A.Ş.
Topkapı Fabrikası

KISIM : SECTION :	Yaprak No : 2 Page No
Yapılan İş : Work Done :	Tarih : Date :

[5.2] Anadolu Cam Sanayii A.Ş. is an incorporated company. Following information is presented officially regarding the shareholders and shares:

Şişecam

	Share %	Share Amount (YTL)
Türkiye İş Bankası	64,107	645.062.248,05
Other	35,893	361.159.935,95
Total	100	1.006.222.184,00

Anadolu Cam Sanayii A.Ş.

	Share %	Share Amount (YTL)
Türkiye Şişe ve Cam Fabrikaları A.Ş. (Şişecam)	70,32	106.483.520
Other	29,68	45.948.171
Total	100	151.431.691

[5.3] Anadolu Cam Sanayii A.Ş. constitutes the glass container production, or the IS production branch of Şişecam Group. Hence, the sector in which the company operates is glass processing and production. The main families of products manufactured in Anadolu Cam are the following:

- Food Containers: Jars, Pots; Milk, Oil, Ketch-up, Vinegar Bottles
- Alcohol-free Drink Bottles: Water, Soda, Light Drink Bottles
- Alcohol-containing Drink Bottles: Raki, Vodka, Gin, Beer, Wine, Liquor, Champagne and Whiskey Bottles
- Cosmetic Products: Perfume and Lotion Flasks
- Medical Products: Pharmaceutical Flasks

All of these products are manufactured from their natural raw materials and delivered to the customers in appropriate packages.

[5.4] The customers of Anadolu Cam Sanayii A.Ş. are very rarely the end users as its main products are empty glass containers. Food and drink companies establish the largest customer group for Anadolu Cam. Since the IS glass container production in Turkey is greatly dominated by the company, nearly all the alcohol-free and alcohol-containing drink producers buy their glass bottles from Anadolu Cam.

Anadolu Cam Sanayii A.Ş.
Türkiye Şişe ve Cam Fabrikaları A.Ş.

6/5

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The pharmaceutical market also provides a major customership for the company, considering that medicals must be kept in sterile glass containers due to their chemical inertness and healthy preservation capability.

[5.5] The organization chart of the factory (the only authorized version) is provided on the next page. Following information can be given regarding the employment:

Salaried : 162
 • Technician : 57 • Engineer : 31 • Other : 74
 Hourly Paid : 548
 Temporary : 37

[5.6] In Topkapı Glass Container Production Plant, mechanical engineers perform the following functions:

- Supervise all processes implemented on the production line.
- Provide continuous operation of the 15 machines producing glass containers.
- Endeavour for increasing the efficiency and the speed of the 15 machines, avoid heat transfer problems occurring as a consequence.
- Intervene and solve any problem occurring on the production flow where technicians and workers lack the necessary theoretical knowledge.
- Perform research and development activities to enhance the production effectiveness of implemented manufacturing processes.
- Design appropriate blank and blow molds as well as auxiliary equipment to produce glass containers according with the demands of the customers.
- Provide the maintenance and prompt substitution of all machinery by performing regular tests and simulations.
- Perform weekly and monthly production planning by utilizing priority recorded data based on the processing of the same major product.


 Anadolu Cam Sanayi A.Ş.
 Topkapı Fabrikası

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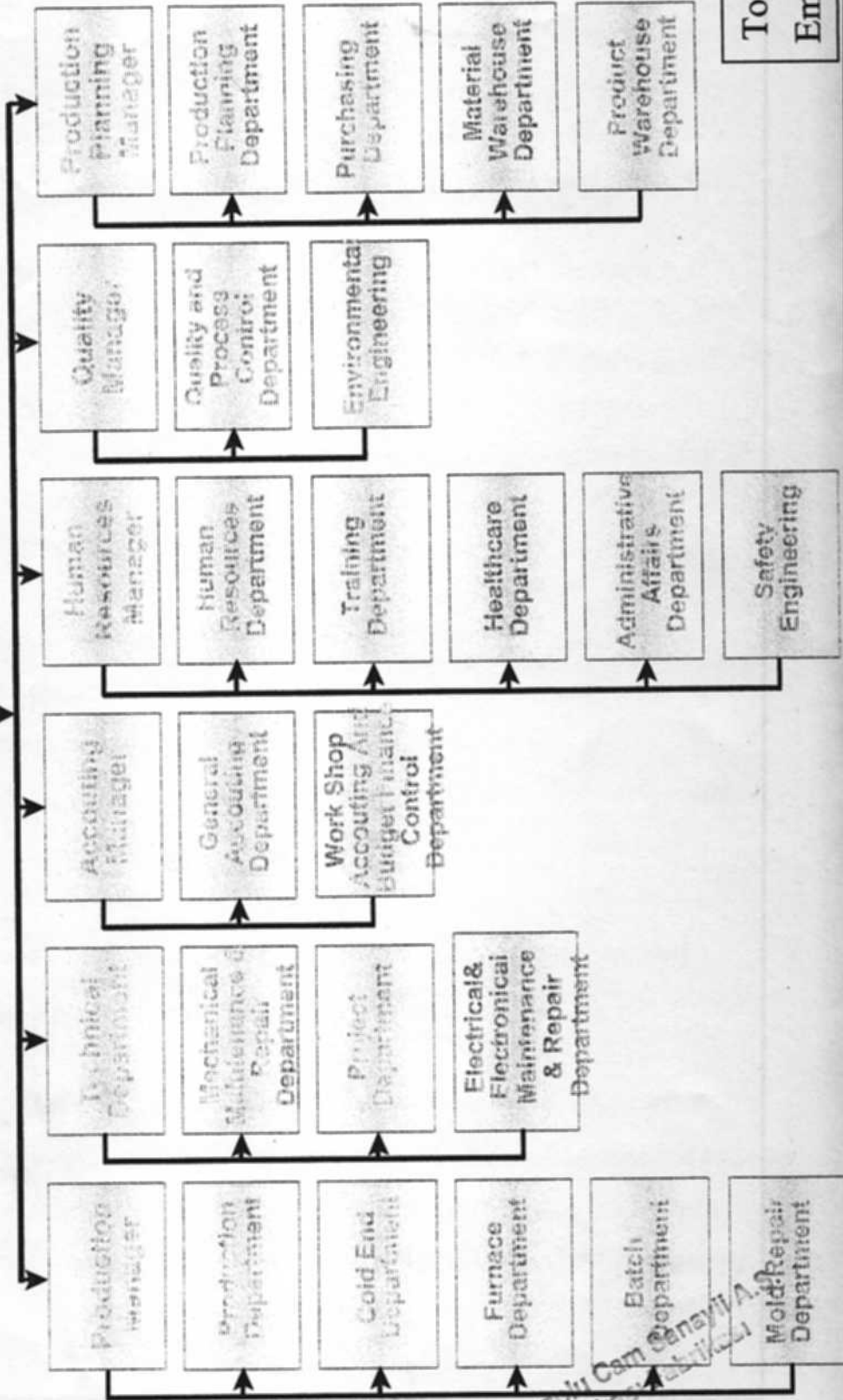
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Date



ŞİŞECAM

ORGANIZATION CHART

PLANT
MANAGER



Total 723
Employee

Anadolu Cam - Topkapı Plant

Anadolu Cam Sanayi A.Ş.
Topkapı Fabrikası