

 <p>The „Proven in Use” Company</p>	SIL4S Tanúsító és Tanácsadó Kft.	
	H-8200 Veszprém Baláca út 54.	
	Phone:	+36 88 400 344
	Fax:	+36 88 400 345
	Web:	<a href="http://www.sil4s.hu">www.sil4s.hu</a>
	E-mail:	<a href="mailto:bgs@sil4s.hu">bgs@sil4s.hu</a>

***Application of Process Safety Standards (IEC 61508, IEC 61511), HAZOP study, SIL evaluation***

**Summary**

- MOL NyRT, Logistic, 1500 km Pipe network: HAZOP Study and SIL classification
- MOL NyRT, Danube Refinery, 48 Refinery Plant: HAZOP Study and SIL classification
- MOL NyRT, Danube Refinery 39 Fire Furnace: HAZOP Study and SIL classification
- MOL NyRT, Tisza Refinery, 4 Refinery Plant: HAZOP Study and SIL classification, Pre-validation
- MOL NyRT, Zala Refinery, 4 Refinery Plant: HAZOP Study and SIL classification
- MOL NyRT, Slovnaft (Bratislava) Refinery, 38 Refinery Plant: HAZOP Study and SIL classification
- MOL NyRT, Slovnaft (Bratislava) Refinery: 42 Fire Furnace, HAZOP Study and SIL classification and Pre validation
- Budapest Power Stations: 10 Natural Gas Boilers: HAZOP Study and SIL classification and Pre validation
- TVK, Tiszaújváros, Ethylene plant: Furnace, HAZOP Study and SIL classification and Pre validation
- MOL, NyRT, TVK, PP4 Plant: HAZOP Study and SIL classification and Pre validation
- MOL, NyRT, Tisza Refinery, ETBE Plant: HAZOP Study and SIL classification and Pre validation
- MOL, NyRT, Danube Refinery: HCK Plant, HAZOP Study and SIL classification
- BRIDGESTON Tatabánya Kft, Three dosing unit: HAZOP Study and SIL classification and Validation

***All work includes the following activity based on IEC 61511:***

- Training
  - For Management
  - For HAZOP Participants
  - For Process Engineers
- HAZOP study
- IPL Allocation
- Decision about SIFs (SIL study: narratives and logic)
- SIL calculation of SIFs
- Safety Requirement Specification (SRS)
- Pre validation



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## Detailed Reference List

### MOL NyRt, Refineries in Hungary

Abbreviation	Name of the Plants
DAV1	Atmospheric and vacuum distillation 1
DAV2	Atmospheric and vacuum distillation 2
DPEM	Aromatics feed re distillation
DKGU	Central gas processing unit
DKOT	Crude oil storage
DFOT	Fuel oil storage
DPBT	PB blending and storage
DAV3	Atmospheric and vacuum distillation 3
DBFR	Naphtha re distillation unit
DGFR	Gas fractionating unit
DPBK	PB desulphurization unit
DKBI	Light naphtha isomerisation
DGK1	Gasoil Hydro treating 1
DBK2	Naphtha Hydro treating 2
DBK3	Naphtha Hydro treating 3
DRF3	Naphtha Reforming 3
DBK4	Naphtha Hydro treating 4
DRF4	CCR Reforming 4
DRFH	Reformat Hydro treating
DFHU	Central flare unit
DPHU	Kerosene hydro treating unit
DHGY	Hydrogen Production 1
DHG2	Hydrogen Production 2
DAR1	Aromatics extraction 1
DAR2	Aromatics extraction 2
DARO	Ortho-xylene unit
DXIL	Xylen isomerisation / ortho - xylene 2
DASB	Special naphtha feed re distillation
DGF1	Steam/BFW 1
DGF2	Steam/BFW 2
DGF3	Steam/BFW 3
DMSA	Maleic acid anhydride unit
DFCC	FCC
DBK5	Naphtha hydro treating 5 and etherification
DMTB	ETBE unit



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Abbreviation	Name of the Plants
DHFA	HF alkylation unit
DBTK	Gasoline blending and storage
DHDS	HDS-MIC (FCC pre treater)
DCL4	Sulphur recovery 4
DCL6	Sulphur recovery 6
DRC2	Cooling water 2 and makeup water
DRC4	Cooling water 4
DGK3	Gas oil hydro treating 3
DFGK	Gas oil blending and storage
DPAM	Propane de asphaltng
DOKF	Lube oil refining
DBAV	Cooling water 3
DRC1	Cooling water 1
DMK1	Solvent de waxing 1
DMK2	Solvent de waxing 2
DMKO	Microcrystalline wax de oiling
DPMH	Solvent de waxing
DKOH	Lube oil hydro finishing
DGPR	Slack wax / petrolatum re distillation
DMIH	Micro paraffin hydrogenation unit
DMPH	Macro paraffin hydrogenation unit
DKOF	Micro paraffin contact unit
DKOK	Lube oil blending
DPGY	Paraffin manufacturing unit
DCL3	Sulphur recovery 3
DCL5	Sulphur recovery 5
DBIT	Bitumen blending / loading unit
DBIF	Bitumen blowing unit
DDCU	Delayed cooker unit
TGKM	TR Gas oil Hydro treater
TMTB	TR MTBE
TCLA	TR Sulphur Recovery
TBEK	TR Storage and Gasoline Blending
	ZR Bitumen units
	ZR Storage



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### MOL NyRt, Slovnaft Refinery

Abbreviations	Name of the plants	Number of Furnace
AD 5	Crude Oil Distillation No.5	One furnace
Asfalty	Asphalts production and expedition	
RHC	Residual Hydro cracker - LC Finer	Four furnace
VGH	VGO Hydro treater (FCC Feed Pretre.)	Two furnace
FCC	FCC	One furnace
HPP	Hydrogen Unit No.2	One furnace
VV KHK	Hydrogen Unit of VGO Hydro cracker	One furnace
VD KHK	Vacuum Distillation of VGO HC	One furnace
ŠJ KHK	Cracking unit of VGO Hydrocracker	Five furnace
FCC	FCC Unit - Fluid catalytic cracking	
SHU	Selective Hydro treating Unit of C4 fr.	
MTBE	MTBE Unit	
ALK	Alkylation	
SRU 100	Sulphur Recovery Unit No.1	
SRU 200	Sulphur Recovery Unit No.2	
AAR	DEA regeneration Unit	
SWS	Sour water stripping Unit	
SAR	Sulphuric acid regeneration Unit	Two furnace
OP1	Gas Desulphurisation Unit No.1	
OP2	Gas Desulphurisation Unit No.2	
DBP1	Gas recovery Unit No.1	
DBP2	Gas recovery Unit No.2	
OKP	Liquid gases desulphurization	
CCR 5	CCR -Naphta Reformer No.5	Five furnace
HRR 4	Naphta Hydro treater for CCR	Two furnace
Izo Ibi	C5/C6 Isomerisation (PENEX)	One furnace
EA	Aromatics Extraction Unit	Two furnace
Exp.Aromátov	Aromatics Expedition Unit	
Red.Ref.	Reformat Splitter	Two furnace
HRP7	Middle distillates HDS No.7	One furnace
HRP2	BTX Distillates HDS No.2	One furnace
HRP6	Middle Distillates HDS No.6	One furnace
NALK	N-Paraffins Unit (MOLEX)	
TEPL	Power Plant	
ÚKV	Air Supply	
MCHBČOV	Mech. Chem. Biologic. WWTU	
Spalovňa	Incinerator	
Bal. Centr.	Package Boilers	
Čistička bl.50	Waste Water Treatment Unit bl.50	
EO	Ethylene Oxide	One furnace
KF	Cumene Phenol	Two furnace



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Abbreviations	Name of the plants	Number of Furnace
KU	Cumene	One furnace
SKP1	Liquefied Gases Storage 1	
SKP2	Liquefied Gases Storage 2	
SPCHV	Storage of Petrochemicals Products	
SEE	Ethylene downloading unit	
PH	Flares	
RS	Recompression station	

In case of any question please contact us:

George Baradits jr.

Phone : +36 88 400 344  
Fax : +36 88 400 345  
Mobile : +36 209 217 312  
E-mail : [george@bareng.hu](mailto:george@bareng.hu)

George Baradits sr.

Phone : +36 88 424 075  
Fax : +36 88 425 601  
Mobile : +36 209 424 126  
E-mail : [bgs@controrg.hu](mailto:bgs@controrg.hu)

Best Regards,

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B A R A D I T S György  
Managing Director  
Functional Safety Engineer  
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