

SRI CONSULTING
 PROCESS ECONOMICS PROGRAM
 CUMULATIVE SUBJECT INDEX (THROUGH JUNE 1996)

June 1996

Issue	PEP	
Date	Report	Pages
ÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄ

NAPHTHA

* NAPHTHA ETHERIFICATION	87-1-3	
JUL 88		
ACETIC ACID FROM	37	53-
119,196-97		
ACETYLENE FROM--SEE ACETYLENE		
AMMONIA FROM	44	121-156
ETHERIFICATION OF	87-1-3	1-34
ETHYLENE FROM--SEE ETHYLENE		
HYDRODESULFURIZATION	47	53-74
	47	74-88
	47A	13-28
HYDROGEN FROM, BY CATALYTIC STEAM REFORMING	32	109-143
SPECIFICATIONS, FOR ACETIC ACID PRODN	37	215
SPECIFICATIONS, FOR ETHYLENE PRODN	29	302-303
THERMOCHEMICAL DATA	43	189
WORLD SUPPLY AND DEMAND (1970-2010)	121B	7.22-
7.25		

NAPHTHALENE

--SEE PLASTICIZERS, VINYL		
BY-PRODUCT IN ETHYLENE PRODN	29	253
FROM COAL TAR BY HYDROREFINING	101	98-121
NITRO- AND DINITRO-NAPHTHALENE FROM	1A/1	331-333
PHTHALIC ACID FROM, BY OXIDN WITH-	34	189
NAOCL AND KMNO4		
PHTHALIC ANHYDRIDE FROM--SEE PHTHALIC-		
ANHYDRIDE		
SEBACIC ACID FROM	75	269-72
SPECIFICATIONS, FOR PHTHALIC ANHYDRIDE PRODN	34	205-206
THERMOCHEMICAL DATA	34	201

NAPHTHALENE DIISOCYANATE

--SEE NAPHTHALENE		
--SEE NITRONAPHTHALENE; DINITRONAPHTHALENE FROM NAPHTHALENE VIA-	1A/1	331-335
1,5-NAPHTHALENEDIAMINE PHOSGENATN FROM NAPHTHALENE VIA-	1B	161
1,5-NAPHTHALENEDIAMINE PHOSGENATN, UPDATED PRODN COSTS		
SPECIFICATIONS	1A/2	565
THERMOCHEMICAL DATA	1A/2	554-557
VAPOR PRESSURE	1A/2	549,551

1,5-NAPHTHALENEDIAMINE

--SEE NITRONAPHTHALENE; NAPHTHALENE INTERMEDIATE IN NAPHTHALENE DIISOCYANATE- FROM NAPHTHALENE	1A/1	331-335
--	------	---------

NAPHTHENIC ACID

--SEE PLASTICIZERS, VINYL

NAPHTHYLAMINES

--SEE ANTIOXIDANTS AND ANTIOZONANTS FOR RUBBER

B-165

June 1996

Issue	PEP Report	Pages
Date	ÄÄÄÄÄÄ	ÄÄÄÄÄ
ÄÄÄÄ		
NAPHTHYLAMINES (continued)		

PRODN OF	85	107-118
NATURAL GAS		

--SEE LIQUIFIED NATURAL GAS		
--SEE METHANE		
--SEE NATURAL GAS LIQUIDS		
ACETYLENE FROM--SEE ACETYLENE		
AMMONIA FROM--SEE AMMONIA		
ETHANOL FROM--SEE ETHANOL		
FORMALDEHYDE FROM--SEE FORMALDEHYDE		
GASOLINE FROM--SEE GASOLINE		
HYDROGEN FROM--SEE HYDROGEN		
METHANOL FROM--SEE METHANOL		
PROTEINS FROM--SEE PROTEINS		
THERMOCHEMICAL DATA	43	189

NATURAL GAS LIQUIDS

	* NATURAL GAS LIQUIDS	135
OCT 79		
	BY CASCADE REFRIGERATION PROCESS	135 102-122
	BY EXPANDER PROCESS	135 45-99
	BY REFRIGERATED ABSORPTION PROCESS	135 149-192
	GENERAL PROCESS BACKGROUND	135 27-44
	SPECIFICATIONS	135 197-201

NATURAL GAS REFORMING

 --SEE CARBON MONOXIDE; HYDROGEN

NEOABIETIC ACID

 --SEE ROSIN ACIDS

NEOPOLYOL ESTERS

 --SEE SYNTHETIC LUBRICANTS

	CHEMISTRY	125 61-65
	PENTAERYTHRITOL MIXED FATTY ACID ESTER, PRODEN OF	125 69-104
	PRODN OF	125A 5.1-
5.26		

NGL

 --SEE NATURAL GAS LIQUIDS

NITRATION

	ANILINE FROM BENZENE BY ADIABATIC	76C 4.1-
4.28		
	ANILINE FROM BENZENE BY CONVENTIONAL	76C 4.1-
4.28		
	CAPROLACTAM FROM CYCLOHEXANE BY	7 133-181
	DINITROBENZENE BY	76A1 9-37
	DINITROBENZENE FROM BENZENE BY	167 111-126
	DINITROTOLUENE FROM TOLUENE BY	1B 27-48
	MONONITROBENZENE FROM BENZENE BY MIXED ACID	76 23-41
	o-NITROPHENOL AND o-NITROCHLOROBENZENE BY	171A 211-228
	TOLUIDINES FROM TOLUENE BY	171B 212-228
	TRIFLURALIN BY	171 93-113

June 1996

	PEP	
Issue	Report	Pages
Date		

ÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄ
NITRIC ACID -----		
* CONCENTRATED NITRIC ACID	82-3-3	
MAY 83		
ACRYLONITRILE FROM PROPANE BY- CYANIZATION WITH	17	101-127
AMMONIUM NITRATE FROM	127A1	21-63
BY DUAL PRESSURE PROCESS (UHDE TECH)	127A1	81-93
CALCIUM NITRATE SOLUBILITY IN CONCENTRATED NITRIC ACID	8A	182
FORMALDEHYDE FROM METHANE BY- PARTIAL OXIDN WITH FROM NOx	82-3-3 23 200	1-21 107-140 9.1-
9.23		
METHACRYLIC ACID PRODN WITH, AS OXIDIZER OXIDN OF INTERMEDIATES BY, IN ADIPIC ACID PRODN	11 3	76-101 53-71
	3A	91-103
PHOSPHORIC ACID PRODN USING	8	86-87
POTASSIUM NITRATE PRODN USING	14	118-136
TEREPHTHALIC ACID FROM p-XYLENE,- BY OXIDN WITH	9	98-112
 NITRIC OXIDE -----		
--SEE NITROGEN OXIDES		
ACRYLONITRILE FROM	17	101-130
CYCLOHEXANONE OXIME FROM	7	97
FROM AMMONIA	7	104-105
HYDROXYLAMINE FROM AMMONIA VIA	7 7A	333 105-121
 NITRILE -----		
FROM AMINE AND CARBON MONOXIDE	49	169
 NITRILES, FATTY -----		
--SEE FATTY NITRILES		
 6-NITRO-6-HYDROXYIMINOHEXANOIC ACID -----		
--SEE NITROLIC ACID		
 o-NITROANISOLE -----		
INTERMEDIATE IN DIANISIDINE DIISOCYANATE- PRODN FROM O-CHLORONITROBENZENE	1A/1	305-329
 NITROBENZENE -----		
* NITROBENZENE BY ADIABATIC NITRATION	78-1-2	
MAY 79		
--SEE ANILINE		
CYCLOHEXYLAMINE FROM	7	424
FROM BENZENE BY ADIABATIC NITRATION	76B 76B	23-28 42-53

FROM BENZENE BY CONVENTIONAL NITRATION	78-1-2	24-32
FROM BENZENE BY NITRATION	76B	23-41
PHENYL ISOCYANATE FROM CO AND, VIA URETHANE	76	23-41
PMPPI FROM, BY CARBONYLATION--SEE POLYMETHYLENE POLYPHENYLISOCYANATE (PMPPI)	1A/2	516-527

NITROCHLOROBENZENE, ORTHO- AND PARA -

--SEE PESTICIDES

B-167

June 1996

Issue	PEP	Report	Pages
Date	ÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄ
ÄÄÄÄ			
NITROCHLOROBENZENE, ORTHO-AND PARA-(continued)			

FROM CHLOROBENZENE		171A	209-228
NITROCYCLOHEXANE			
--SEE CAPROLACTAM; CYCLOHEXANONE OXIME			
FROM CYCLOHEXANE AND NITRIC ACID, IN PRODN- OF CAPROLACTAM		7	133-181
FROM CYCLOHEXANE AND NITRIC ACID, IN PRODN- OF CYCLOHEXANONE OXIME		7A	123-141
HEALTH, SAFETY AND POLLUTION		7A	278
PHYSICAL DATA		7A	268
2-NITROCYCLOHEXANONE			

FROM CYCLOHEXANONE BY NITROSATION,- IN PRODN OF EPSILON AMINOCAPROIC ACID		7A	236-240
NITROGEN			

* 95% NITROGEN FROM AIR BY VACUUM PRESSURE- OCT 90		89-3-2	
SWING ADSORPTION			
* 95% NITROGEN FROM AIR BY VACUUM PRESSURE- JUN 91		89-3-2R	
SWING ADSORPTION			
* ON-SITE PRODN OF N2 FROM AIR BY PRESSURE- FEB 87		86-1-1	
SWING ADSORPTION			
--SEE FERTILIZERS			
AMMONIA FROM--SEE AMMONIA			
HYDROGEN PURIFICATION, BY REMOVING		32	261
VACUUM PRESSURE SWING ADSORPTION		89-3-2	2-12

NITROGEN COMPOUNDS, FATTY

- --SEE DIFATTY DIMETHYL QUATERNARY-AMMONIUM CHLORIDES
 --SEE FATTY AMINES, PRIMARY
 --SEE FATTY AMINES, SECONDARY
 --SEE FATTY NITRILES

NITROGEN COMPOUNDS, HETEROCYCLIC

 * HETEROCYCLIC NITROGEN COMPOUNDS 210
 JAN 93
 CHEMISTRY 210 4.1-
 4.6
 CYANURIC ACID FROM UREA BY PYROLYSIS 210 7.1-
 7.15
 2-PICOLINE FROM ACRYLONITRILE AND ACETONE 210 6.1-
 6.17
 PYRIDINE AND 3-PICOLINE FROM ACETALDEHYDE,- 210 5.1-
 5.20
 FORMALDEHYDE AND AMMONIA

NITROGEN DIOXIDE

 p-XYLENE OXIDN WITH 9 149

NITROGEN OXIDES

 * NOX REMOVAL 200
 MAY 89
 --SEE FERTILIZERS
 --SEE NITRIC OXIDE
 COMBUSTION CONTROL METHODS IN REMOVAL OF 200 2.5-
 2.11
 COMBUSTION MODIFICATION AND BOILER DESIGN 200 4.1-
 4.25
 CYCLOHEXANONE OXIME HYDROCHLORIDE FROM 7A 29-30
 GAS TREATING METHODS IN REMOVAL OF 200 2.12-
 2.17
 GAS TURBINES 200 5.9-
 5.16
 HEALTH, SAFETY AND POLLUTION 7A 276

B-168

June 1996

Issue	PEP	
Date	Report	Pages
ÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄ

NITROGEN OXIDES (continued)

	HYDROXYLAMINE FROM	7	333-339
	MATERIALS OF CONSTRUCTION	7A	279
	NITRIC ACID PROCESSES	200	9.1-
9.23	NITROSYL CHLORIDE FROM AMMONIA VIA-		
	-SEE NITROSYL CHLORIDE		
	NITROSYLSULFURIC ACID FROM AMMONIA VIA-		
	-SEE NITROSYLSULFURIC ACID		
	OTHER FLUE GAS TREATING PROCESSES	200	8.1-
8.16	PROCESS HEATERS	200	5.1-5.9
	REMOVAL FROM FLUE GASES	63A	191-198
		63B	357-392
	SELECTIVE CATALYTIC REDUCTION	200	7.1-
7.22	SELECTIVE NONCATALYTIC REDUCTION	200	6.1-
6.23	WORLD-WIDE REGULATIONS	200	2.1-2.5
	NITROLIC ACID (6-NITRO-6-HYDROXYIMINOHEXANOIC- ACID)		

	--SEE ADIPIC ACID, FROM CYCLOHEXANOL CAPROLACTAM FROM	7A	257
	NITRONAPHTHALENE		

	FROM NAPHTHALENE	1A/1	331-333
	p-NITROPHENOL		

	PRODN OF, FOR N,N-DIPHENYL- P-PHENYLENEDIAMINE PRODN	85	199-208
	NITROSYL CHLORIDE		

	--SEE CAPROLACTAM FROM AMMONIA VIA NITROGEN OXIDES, INTERME- DIATE IN CAPROLACTAM PRODN BY PNC PROCESS	7	85-131
		7A	27-85
		7B	113-198
	THERMOCHEMICAL DATA	7	437
	NITROSYLSULFURIC ACID		

	--SEE CAPROLACTAM FROM AMMONIA VIA NITROGEN OXIDES,-	7	23-
83,85-131	INTERMEDIATE IN CAPROLACTAM PRODN		
		7A	27-
85,247-8		7B	53-
81,113-198	PHYSICAL DATA	7A	265
	SPECIFICATIONS, FOR CAPROLACTAM PRODN	7A	274
	THERMOCHEMICAL DATA	7	193,436

NMP

--SEE N-METHYLPYRROLIDONE

n-NONADECYLIC ACID

FROM PARAFFIN BY OXIDN

42

145-229

NONIONIC SURFACTANTS

--SEE SURFACTANTS, NONIONIC

NONYL ALCOHOL

--SEE ISOCTANOL; OXO ALCOHOLS

B-169

June 1996

Issue	PEP	
Date	Report	Pages
ÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄ
NONYL ALCOHOL(continued)		

CO-PRODUCT IN ISOCTANOL PRODN	21	45-
62,161-208		
PHYSICAL DATA	21	237-244
SPECIFICATIONS	21	251
NONYLPHENOL		

--SEE ALKYLATED PHENOLS		
NOVOLAC RESINS		

--SEE EPOXY RESINS		
--SEE PHENOLIC FOAMS		
FROM PHENOL AND FORMALDEHYDE	38	153-180
	38A	7-
8,105-148		
	93	76-98
	93A	5-32-
5.42		
NTA		

--SEE SODIUM NITRILOTRIACETATE		
NYLON 11		

PRODN OF	94	359-372
NYLON 12		

--SEE POLYAMIDES		
PRODN OF	94	339-353
NYLON 12,12		

* NYLON 12,12 RESIN FROM BUTADIENE-	89-2-2	
APR 90		
BY DU PONT TECHNOLOGY		
FROM 1,3-BUTADIENE VIA 1,12-DODECANEDIOIC-	89-2-2	1-33
ACID (DUPONT TECH)		
NYLON 30203-6		

IN THE PRODN OF FIBER S	85-1-3	1-21
NYLON 3M6,T		

--SEE POLYAMIDES		
PRODN OF	94	251-262
NYLON 4		

PRODN OF	94	373-390
NYLON 4,6		

* NYLON 4,6	88-1-3	
JAN 89		
* TETRAMETHYLENE DIAMINE FOR NYLON 4,6	85-3-1	
AUG 86		
FROM TETRAMETHYLENE DIAMINE	88-1-3	1-23
NYLON 6		

* NYLON 6	41	
JUL 68		
* NYLON 6	41A	
JUL 76		
* NYLON 6 AND CAPROLACTAM	41B	
MAR 88		
--SEE CAPROLACTAM		
--SEE NYLON 6,6		
ADDITIVES	41A	86-110
AMINO ACID-CATALYZED PRODN OF	41	51-53

B-170

June 1996

PEP

Issue

Date	Report	Pages
ÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄ
NYLON 6 (continued)		
7.27	159B	7.1 -
	41	37-50
	41	73,59
	41A	63-80
	41B	80-83
	41	50-
51,60.73	41A	41-42
	41B	77-80
	41	35-43
	41	55-
8,69-73	41	79-
101,121-13	41A	25-37
	41A	44-55
	41	121-135
	41A	159-168
	41	118-120
6,73-7	41	61-
	41A	114-128
	41	79-101
	41A	129-150
	41	163
	41A	191
	41B	57-62
	54	136
	54	179-181
	54	25-26
	41	157
	41A	185-190
78	41	67,77-
	41A	12-
14,80-86	41	79-102
	41A	130-149
	41B	193-229
	41B	77-86
	41B	193-209
	41	161-162
	41	161
	41A	175-180
	41	137-152
	41A	166-173
	41	103-117

	NYLON 6,6	

	* NYLON 6,6	54
NOV 69		
	* NYLON 6,6	54A
FEB 80		
	* NYLON 6,6	54B
SEP 87		

B-171

June 1996

Issue	PEP	
Date	Report	Pages
ÄÄÄÄ	ÄÄÄÄÄÄÄ	ÄÄÄÄÄ
NYLON 6,6 (continued)		

--SEE ADIPIC ACID		
--SEE ADIPONITRILE		
--SEE HEXAMETHYLENEDIAMINE (HMDA)		
--SEE NYLON 6		
--SEE NYLON SALT		
ADDITIVES COST EFFECTS	54A	99
ADDITIVES IN	54	45-
47,53,71		
BULK POLYMERIZATION	54	39
CARPET STAPLE FROM	54A	127-134
CARPET STAPLE FROM NYLON SALT SOLUTION	54B	346-349
CARPET YARN FROM	54A	135-141
CARPET YARN FROM NYLON SALT SOLUTION	54B	350-353
CHEMISTRY	54	19-22
CHIPS OR RESIN PRODUCTION	54	130-139
	54	91,95-
124		
	54A	69-93
COPOLYMERS AND BLENDS	54	59,61
DECOMPOSITION	54	24
DU PONT TECHNOLOGY	89-2-2	2-33
FIBERS	54B	343-365
FIBERS, DRAWING	54	72-
73,141-2		
FIBERS, MELT SPINNING	54	60,63-
9,141-2		
FIBERS, NONWOVEN	54	69,75-
76		
FIBERS, PROCESS REVIEW	54A	101-126
FIBERS, PRODUCTION	54	141-158
FIBERS, SOLUTION SPINNING	54	69
HIGH TENACITY YARN	54	143-4
INCREASING MOLECULAR WEIGHT	54	44
MOLECULAR DISTRIBUTION	54	23-24

	MOLECULAR STRUCTURE	54	26-27
	MOLECULAR WEIGHT	54	23,169
	MONOFILAMENTS, BRISTLE	54	145-147
	MONOFILAMENTS, HOSIERY	54	144-145
		54A	156-162
	MONOFILAMENTS, HOSIERY, FROM NYLON 6,6 CHIPS	54B	362-365
	NYLON 6, COMPARISON OF COSTS	54	136
	NYLON 6, COMPARISON OF PROPERTIES	54	179-181
	NYLON 6, DIFFERENCES	54	25-26
	PHYSICAL PROPERTIES	54	164-167
	POLYCONDENSATION, AQ SOLN NYLON SALT, - FIRST STAGE TANK REACTOR	54A	56-65
55,66	POLYCONDENSATION, AQ SOLN NYLON SALT, - IN DU PONT CANADA REACTOR	54A	44-
	POLYCONDENSATION, AQ SOLN NYLON SALT, - REVIEW OF PROCESSES	54A	37-44
	POLYCONDENSATION, BATCH	54	31,96
	POLYCONDENSATION, COMPARISON OF METHODS	54	116-121
	POLYCONDENSATION, CONTINUOUS	54	33-35
	POLYCONDENSATION, CONTINUOUS, COLUMN	54	103,111

B-172

June 1996

Issue	PEP	Report	Pages
Date	ÄÄÄÄÄ	ÄÄÄÄÄ	ÄÄÄÄÄ
ÄÄÄÄ			
	NYLON 6,6 (continued)		

	POLYCONDENSATION, CONTINUOUS, TANK	54	97-102
	POLYCONDENSATION, CONTINUOUS, TUBULAR	54	76,78-
9,125-9			
	POLYCONDENSATION, INTERFACIAL	54	41
	POLYCONDENSATION, LOW-TEMP SOLN	54	41
	POLYCONDENSATION, NONCONVENTIONAL PROCESSES	54A	163-165
	POLYCONDENSATION, SOLID-PHASE OR SUSPENSION	54	40
	POLYCONDENSATION, THIN-FILM	54	
108,113-115			
	POLYCONDENSATION, WITHOUT PRESSURE IN SOLN	54	37
	POWDER PRODUCTION	54	76,78-
79			
	RESIN FROM NYLON SALT BY A BATCH PROCESS	54B	333-340
	RESIN FROM NYLON SALT BY A CONTINUOUS PROCESS	54B	311-332
	RESIN FROM WASTE FIBER	54B	334,341
	RESINS	54B	309-341
	SALT	54B	289-308
	SALT AQUEOUS SOLUTION FROM ADIPIC- ACID AND HEXAMETHYLENEDIAMINE	54B	290-299
	SALT, SOLID	54B	300-308
	SPECIAL PRODUCTS	54A	167

	SPECIFICATIONS	54	164-167
	SPECIFICATIONS, RAW MATERIAL	54	163
	SPINNING CHIPS FROM ADIPIC ACID AND- HEXAMETHYLENEDIAMINE	54A	94-98
	STABILIZERS	54	46-50
	STAPLE FIBER, BICOMPONENT	54	150-152
	TEXTILE YARN	54	142-143
	TEXTILE YARN FROM NYLON 6,6 CHIPS	54B	18,358-
361	TEXTURED YARN	54A	149-155
	TEXTURED YARN BICOMPONENT	54	147-150
	TIRE CORD	54A	142-148
	TIRE CORD FROM NYLON SALT SOLUTION	54B	17,354-
357	VISCOSITY, MELT	54	177
	VISCOSITY, SOLUTION	54	170-176
	WASTE RECOVERY	54	125-129
	WASTEWATER RECYCLE	54A	67
NYLON 610			

--SEE NYLON 6,6			
NYLON PACM, 12			

--SEE POLYAMIDES			
	PRODN OF	94	278-293
NYLON SALT			

	AQUEOUS SOLUTION	54A	19-28
	PRODN OF	54	81-94
	SAFETY	54	183
	SOLID, FROM AQUEOUS SOLUTION	54A	34-35
	SOLID, FROM DIMETHYL ADIPATE AND HMDA	54A	36
	SOLID, FROM METHANOL SOLUTION	54A	29-33
	SPECIFICATIONS	54	163

B-173

June 1996

Issue	PEP	
Date	Report	Pages
ÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄ

NYLONS

--SEE BLENDS OF THERMOPLASTIC POLYMERS

--SEE DIBASIC ACIDS

--SEE FIBERS

--SEE FOAMS

--SEE PLASTICS, REINFORCED