Table S1a. NMVOC Speciation, Composite Profile for SNAP 6 (Solvents), percent contribution by mass to the total (Passant, 2002).

Compound or Group	(%)
ethanol	9.40
methanol	6.40
toluene	5.20
acetone	5.00
butane	4.40
trichloroethene	4.00
m-xylene	3.20
2-butanone	3.00
ethyl acetate	2.80
4-methyl-2-pentanone	2.50
1,1,1-trichloroethane	2.20
dichloromethane	2.00
decane	1.80
1,2,4-trimethylbenzene	1.70
hexane	1.60
2-propanol	1.60
tetrachloroethene	1.50
butyl acetate	1.40
ethylbenzene	1.20
1-butanol	1.20
methylethylbenzene	1.00
nonane	1.00
1-propanol	1.00
undecane	0.90
propane	0.90
2-butanol	0.80
o-xylene	0.80
p-xylene	0.80
2-propyl acetate	0.70
dipentene	0.60
ethyldimethylbenzene	0.60
4-methyldecane	0.50
1,3,5-trimethylbenzene	0.50
1,2,3-trimethylbenzene	0.50
2-methyl-1-propanol	0.50
2-methylpentane	0.40
3-methylnonane	0.40
3-ethyl-2-methylheptane	0.40
2-butoxyethanol	0.40
4-methyl-4-hydroxy-2-pentanone	0.40
2-(2-butoxyethoxy)ethanol	0.40
heptane	0.40
3-methylpentane	0.40
1-methoxy-2-propanol	0.40
cyclohexane	0.40
2-(2-ethoxyethoxy)ethanol	0.40
2-methylnonane	0.40
propylcyclohexane	0.40
unspeciated aromatic hydrocarbons	0.40
2,6-dimethyloctane	0.40
C10 cycloalkanes	0.30
3-methylhexane	0.30
2-methylhexane	0.30
3-methyldecane	0.30
C11 alkanes	0.30
(1-methylpropyl)cyclohexane	0.30
4-methylnonane	0.30
1-methyl-4-isopropylcyclohexane	0.30

propyl acetate	0.30
propylbenzene	0.30
1-ethoxy-2-propanol	0.30
1-methyl-4-isopropylbenzene	0.30
2-methyldecane	0.30
butylcyclohexane	0.30
methylcyclopentane	0.30
styrene	0.30
1,4-dichlorobenzene	0.30
C10 alkanes	0.30
benzyl alcohol	0.30
ethylene glycol	0.30
3-ethyltoluene	0.30
methylpropylbenzene	0.30
1-ethyl-3-methylcyclohexane	0.30
1,2-propanediol	0.20
1-(2-butoxy-1-methyl-ethoxy)-2-propanol	0.20
2,2,4-trimethyl-1,3-pentanediol	0.20
monoisobutyrate	-
tri-n-butyl phosphate	0.20
1,2,3,5-tetramethylbenzene	0.20
1-methoxy-2-propyl acetate	0.20
cyclohexanone	0.20
2-ethoxyethanol	0.20
2-methylpropane	0.20
2-ethoxyethyl acetate	0.20
tetradecane	0.20
dimethylcyclopentane	0.20
(1-methylethyl)cyclohexane	0.20
(2-methylpropyl)cyclohexane	0.20
1-methyl-3-propylbenzene	0.20
2-butoxyethyl acetate	0.20
methylcyclohexane	0.20
1,2,4,5-tetramethylbenzene	0.20
pine oil	0.10
1,2,3-trimethylcyclohexane	0.10
5-methyldecane	0.10
2-[2-(2-ethoxy-ethoxy)-ethoxy]ethanol	0.10
4-methyloctane	0.10
2-methyloctane	0.10
2-(methoxyethoxy)ethanol	0.10
1-ethoxy-2-propyl acetate	0.10
2,5-dimethyloctane	0.10
2-methoxyethanol	0.10
1-(2-methoxy-1-methyl-ethoxy)-2-propanol	0.10
1-(2-ethoxy-1-methyl-ethoxy)-2-propanol	0.10
2-isopropoxyethanol	0.10
3,4-dimethylheptane	0.10
3-methyloctane	0.10
1,2,3,4-tetramethylbenzene	0.10
2,2,3,3-tetramethylhexane	0.10
1-ethyl-4-methylcyclohexane	0.10
dodecane	0.10
dimethyl ether	0.10
4-ethyltoluene	0.10
2-(2-butoxyethoxy)ethyl acetate	0.10
2-(2-ethoxyethoxy)ethyl acetate	0.10
unspeciated hydrocarbons	0.10
(2-methyl-1-propyl)acetate	0.10
2-methoxyethyl acetate	0.10
3,3-dimethyloctane	0.10
ethylcyclohexane	0.10

2-methyl-5-ethyloctane	0.10
3,7-dimethylnonane	0.10
C12 alkanes	0.10
decalin	0.10
2,3-dimethylheptane	0.10
3-ethylheptane	0.10
1-methoxy-2-ethanol	0.10
indan	0.10
unspeciated/other species	6.40

Table S1b. TNO NMVOC Speciation Profile for SNAP 6 (Solvents) in percent contribution by mass, European Average (Builtjes et al. 2002).

Compound or Group	(%)
acids	0
alcohols	9.2
benzene	0
butanes	0
chlorinated HCs	12
esters	11
ethane	0
ethene	0
ethers	4.6
ethyne	0
hexanes&higher alkanes	31
ketones	10
methanal	0
other alk(adi)enes&alkynes	0
other alkanals	0
other aromatics	1.6
others	4.1
pentanes	0
propane	0
propene	0
toluene	8.0
trimethylbenzenes	0
xylene	8.0

Table S1c. IPCC NMVOC speciation profile for all sectors, including solvents, in percent contribution by mass to total (Ehhalt et al., 2001).

Species	(%)
Alcohols	3.2
Ethane	4.7
Propane	5.5
Butanes	10.9
Pentanes	9.4
Higher alkanes	18.2
Ethene	5.2
Propene	2.4
Ethyne	2.2
Other alkenes, alkynes, dienes	3.8
Benzene	3
Toluene	4.9
Xylene	3.6
Trimethylbenzene	0.7
Other aromatics	3.1
Esters	1.4
Ethers	1.7
Chlorinated HC's	0.5
Formaldehyde	0.5
Other aldehydes	1.6
Ketones	1.9

Acids	3.6
Others	8.1

Table S1d. NMVOC speciation profile provided in the EMEP model for the solvent sector, in percent contribution by mass to the total (Simpson et al., 2012).

Compound or Group	(%)
Ethane	0.44
n-Butane	44
Ethene	0.24
Propene	0.68
Isoprene	0.008
o-Xylene	18
Methanol	6.1
Ethanol	16
Formaldehyde	0.011
Acetaldehyde	0
Methylethylketone	10
Glyoxal	0
Methylglyoxal	0
Unreacted	4.2

Table S1e. NMVOC speciation profile for the solvent sector for Germany in 1994, in percent contribution by mass to the total (Friedrich et al., 2002).

Compound or Group	(%)
aliphatic hydrocarbons	35
alcohols	25
aromatic compounds	14
esters	8
glycol derivatives	7
ketones	5
halocarbons	2
ethers	1
terpenes	1
Others	2

Table S1f. NMVOC speciation profile for the solvent sector for Greece, in percent contribution by mass to the total (Sidiropoulos and Tsilingiridis, 2007).

Compound or Group	1995	2000	2005
methylenechloride	0.7	0	0.6
tetrachloroethylene	1.5	1.5	1.2
trichloroethylene	1.2	1.5	0.6
1,1,1-trichloroethane	0	-	-
trichlorotrifluoromethane	0	0	-
trichlorofluoromethane	0.2	0	0.2
white spirit	40.9	27.7	34.5
creosote oil	17.7	9.1	0.9
vinyl acetate	7.3	11.6	8.4
ethyl acetate	5.2	8.6	7.7
Acetone	5.5	5.7	4.2
methanol	9.2	15.4	22.6
Benzenes	0.1	0	0
Toluenes	-	0	0
Xylenes	-	-	0
turpentine	0.5	4	0
cyclohexane	0	0	0
Butanone	0.1	0.1	0.1
cyclohexanone	0	0	0
methylisobutylketone	0.9	0.4	0.2
hexylene glycone	0.1	0	0
ethylene glycol	1	2.5	4.8

ethylbenzene	-	0	-
Benzene	-	0	-
Isomers of xylene	0.3	0.4	0.4
o-xylene	-	0	-
Styrene	4	5.6	7.8
Toluene	2.2	2.9	2.3
n-butyl alcohol	0.2	0.3	0.3
diacetone alcohol	0	0.1	0.2
cyclo hexanole	0	0	0
n-butyl acetate	1.2	2.5	2.9

Table S1g. UK National Atmospheric Emission Inventory NMVOC speciation profile for solvent use, in percent contribution by mass to the total, for 1998 (Goodwin, 2000), for 2008 (Murrells et al., 2010).

Compound or Group	1998	2008
Ethanol	10	11
Butane	2.7	5.1
Ethane	0.0	0.0
Propane	2.7	1.0
methanol	0.70	7.8
Toluene	6.6	2.9
Ethylene	0.0	-
Acetone	2.1	4.8
Pentane	3.4	0.12
benzene	0.0	0.00
2-methylbutane	0.0	0.013
m-xylene	3.2	3.1
hexane	1.0	0.67
trichloroethene	4.0	3.3
formaldehyde	0.0	0.0067
2-methylpropane	0.0	0.26
2-butanone	2.4	3.1
dichloromethane	2.0	2.7
decane	2.2	2.1
1,2,4-trimethylbenzene	1.5	1.4
propylene	0.0	0.0
butyl acetate	1.7	2.6
heptane	0.064	0.40
ethylbenzene	1.2	1.2
2-propanol	2.0	2.1
octane	0.092	0.34
ethyl acetate	2.7	1.8
p-xylene	0.78	0.83
o-xylene	0.80	0.77
4-methyl-2-pentanone	1.4	1.5
tetrachloroethene	1.4	1.5
nonane	1.3	1.3
undecane	1.2	1.1
acetylene	0.0	0.0
1-butanol	1.6	1.0
1,3,5-trimethylbenzene	0.57	0.48
1-propanol	1.8	0.92
2-methylpentane	0.0	0.32
2-butoxyethanol	-	0.88
dipentene	-	0.84
1,2,3-trimethylbenzene	-	0.48
1,3-butadiene	0.0	-
1-methoxy-2-propanol	-	0.74
methylethylbenzene	0.0	0.69
2-methylhexane	0.0	0.21
2-butene	0.0	-
4-methyldecane	-	0.64

methyl acetate	0.0	-
methylheptanes	0.0	0.0
1,1,1-trichloroethane	3.0	0.0
2-methylpentane	0.10	0.0
paraffins other	0.0	0.0
3-methylpentane	0.090	0.0
3-ethyltoluene	0.40	0.0
4-ethyltoluene	0.20	0.0
1-butene	0.0	0.0
2-pentene	0.0	0.0
other VOCs	28	24
other grouped species	-	2.0
Unspeciated VOCs	5.3	2.1

Table S2. Mean and standard deviation of the maximum difference in ozone produced by the different solvent sector speciations (solvent sector emissions only) with tuned NO and a 10,000 sq. km area model runs. The mean ozone mixing ratio across for the entire run is also included. Each day defined as 6am-6am.

	MCMv3.2	MOZART-4	RADM2
Day 1	1.3±0.7	1.2±0.6	1.2±0.6
Day 2	2.1±0.2	1.2±0.2	1.7±0.2
Day 3	2.0±0.2	1.1±0.1	1.5±0.1
Day 4	2.1±0.2	1.0±0.1	1.3±0.1
Day 5	2.1±0.2	0.8±0.1	1.1±0.1
Day 6	1.9±0.1	0.6±0.1	0.8±0.1
Day 7	1.5±0.1	0.6±0.0	0.6±0.1
Entire Run	1.9±0.4	0.9±0.3	1.2±0.4
Mean O3 all days	37	36	40