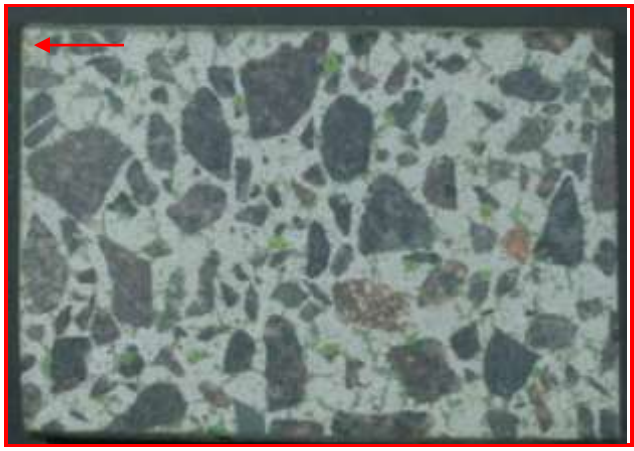
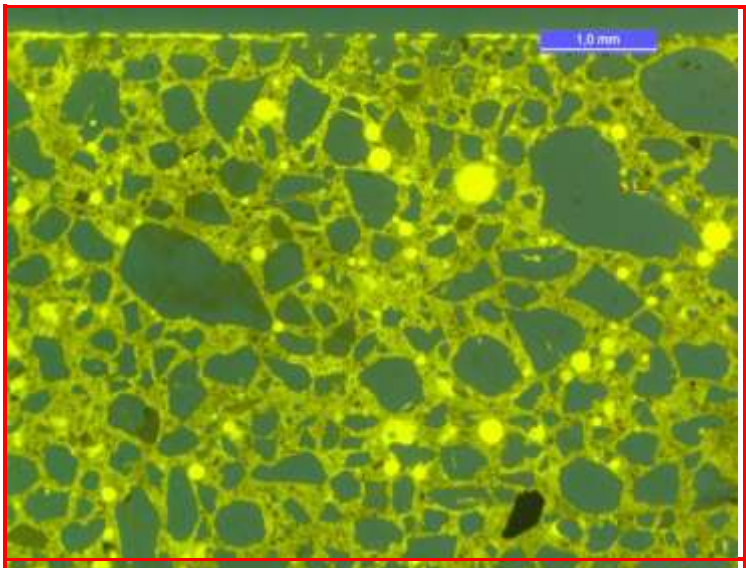
Concrete No.: **Femern A** **Age: 28 days**

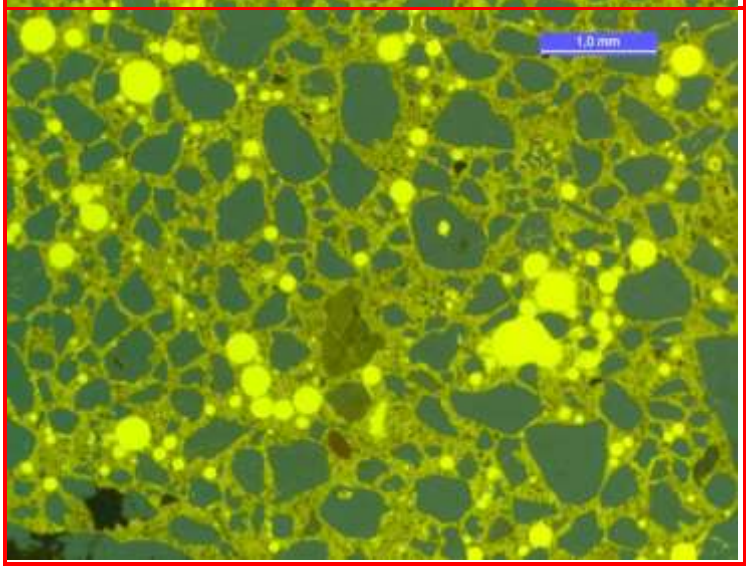


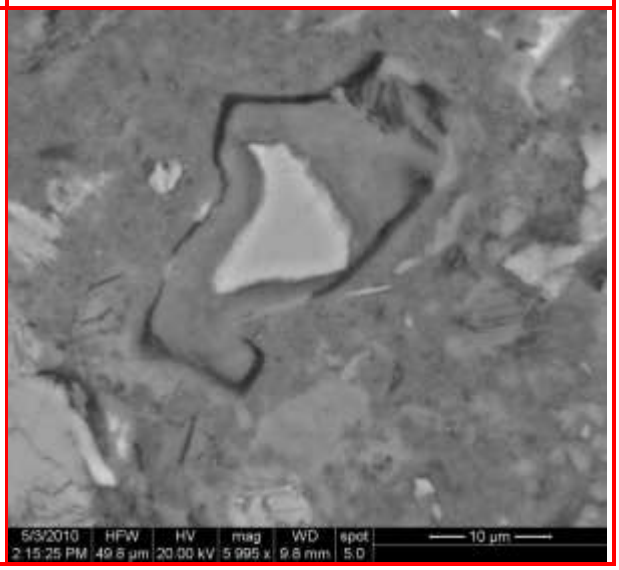
Mix Design		Fresh Properties	
CEM I 42,5 N	365	w/c	0,40
Fly ash	0	Air largeB, fresh%	5,9
Microsilica	0	Slump, mm	200
Water	146	Density, kg/m^3	2310
Air %	4,5	28 days, MPa	43,3
F. agg. 0/2	695		
C. agg. 4/8	377	Air, hard.%	3,2
C. agg. 8/16	266	Casting date	
C. agg. 16/22	529		



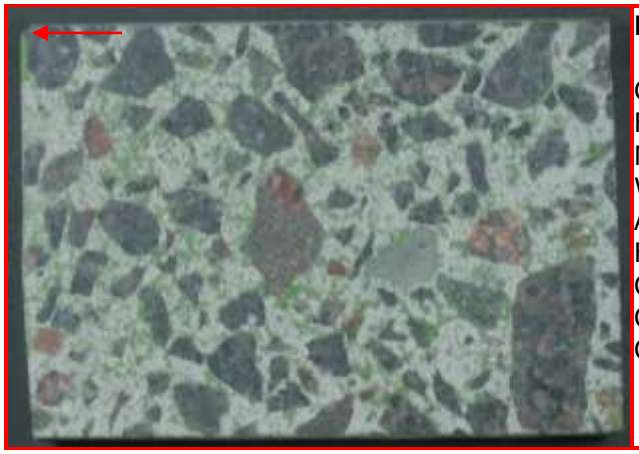
Micro-observations

Thin calcite layer on surface
Carbonated paste not observed
Uniform paste porosity through core
W/c estimated to about 0,45
No cracks in surface
Generally no cracks in paste except few adhesion cracks
Relatively poor air void structure, appears lower than 4,5%, few of the smallest voids, some air void clusters present

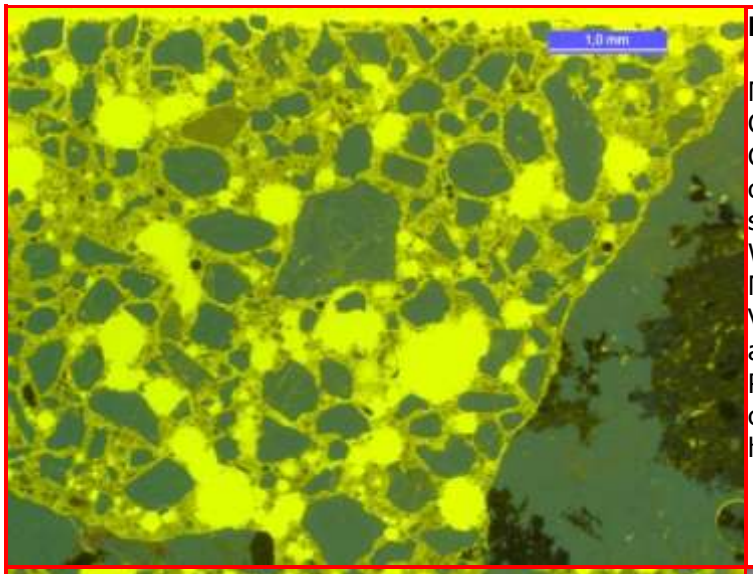




Concrete No.: **Femern B** **Age: 28 days**

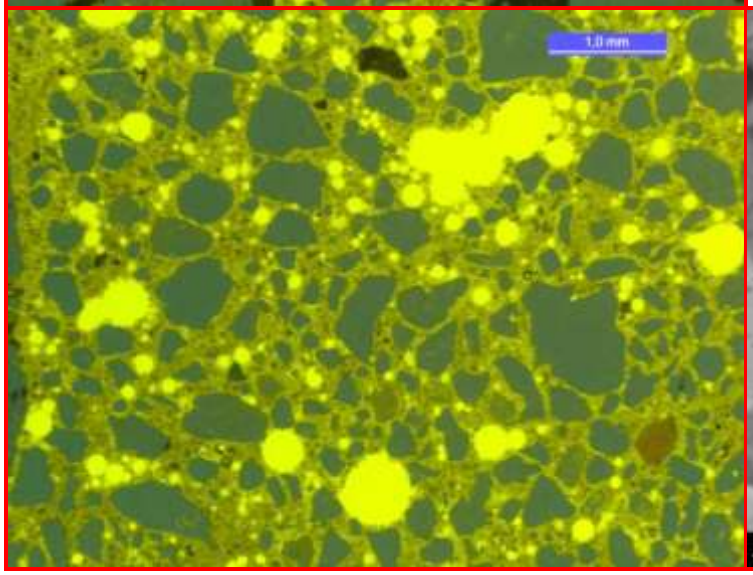


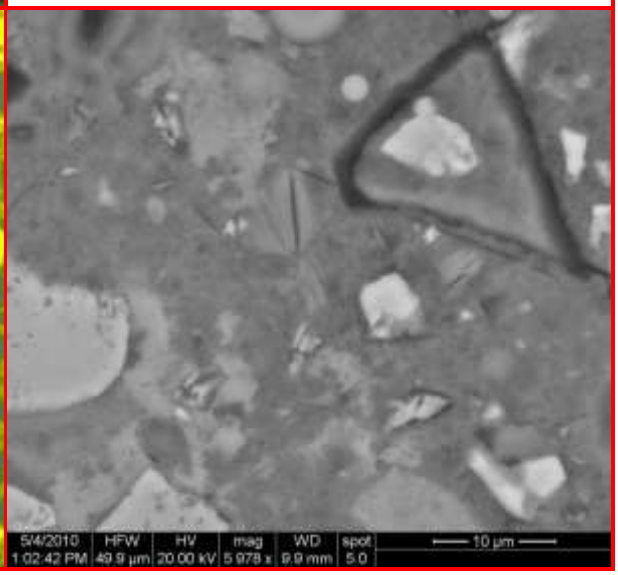
Mix Design		Fresh Properties	
CEM I 42,5 N	322	w/c	0,40
Fly ash	57	Air largeB, fresh%	5,4
Microsilica	0	Slump, mm	140
Water	140	Density, kg/m^3	2350
Air %	4,5	28 days, MPa	48,5
F. agg. 0/2	671		
C. agg. 4/8	374	Air, hard.%	4,3
C. agg. 8/16	270	Casting date	
C. agg. 16/22	538		



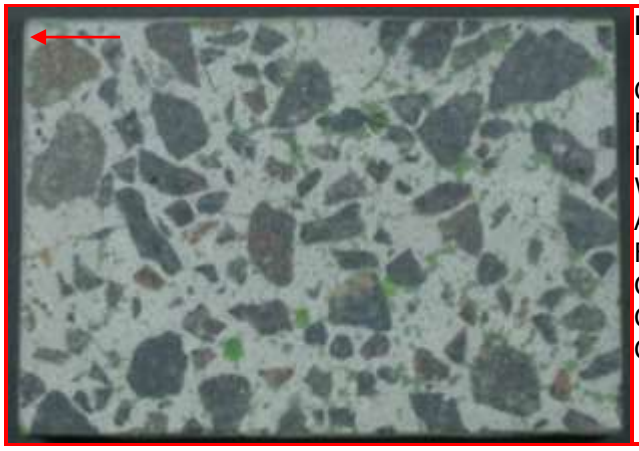
Micro-observations

No calcite layer on surface
Carbonated paste not observed
Generally uniform paste porosity through core with a weak increase towards the surface
W/c estimated to about 0,45
No cracks in surface
Very few cracks in paste as well as few adhesion cracks with CH
Relatively poor air void structure, air content probably on target but air voids are highly clustered especially along aggregate

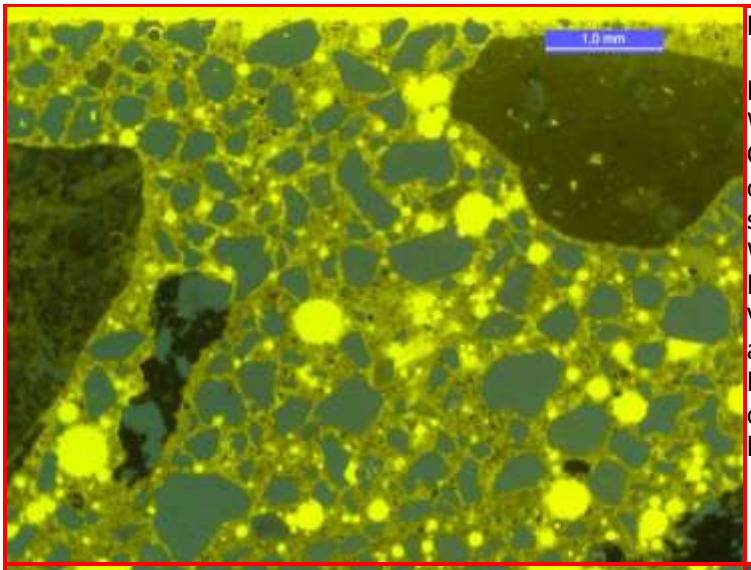




Concrete No.: **Femern C** **Age: 28 days**

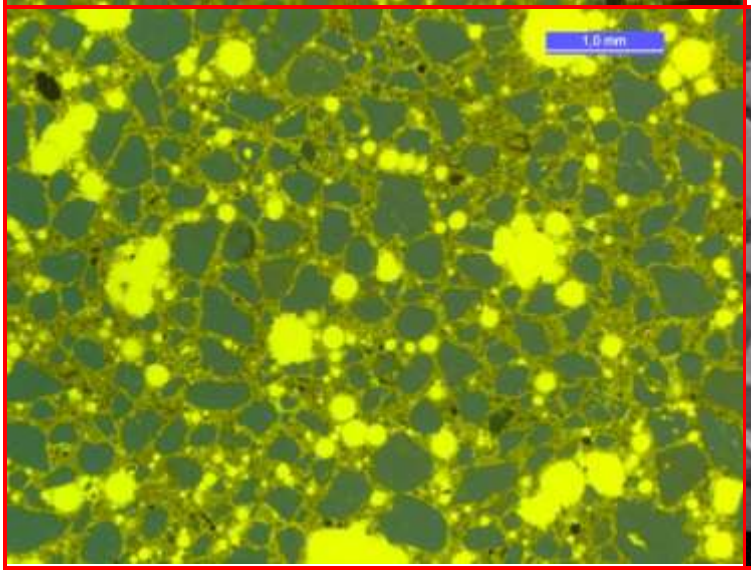


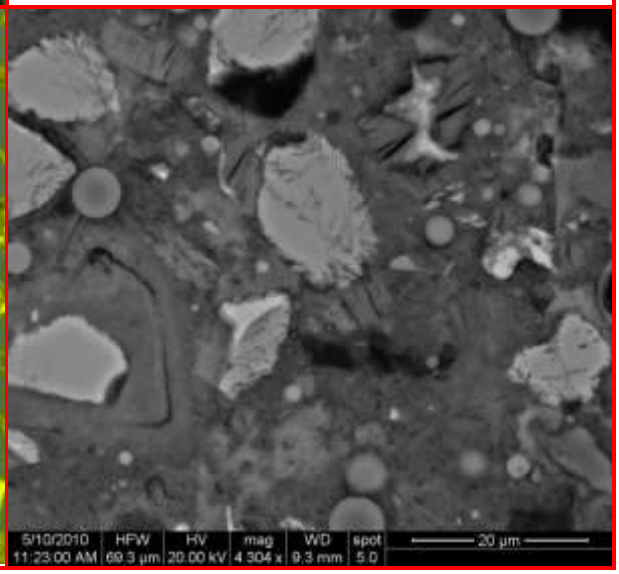
Mix Design		Fresh Properties	
CEM I 42,5 N	300	w/c	0,40
Fly ash	100	Air large B, fresh%	5,5
Microsilica	0	Slump, mm	110
Water	140	Density, kg/m^3	2330
Air %	4,5	28 days, MPa	43,8
F. agg. 0/2	642		
C. agg. 4/8	367	Air, hard.%	5,4
C. agg. 8/16	271	Casting date	
C. agg. 16/22	541		



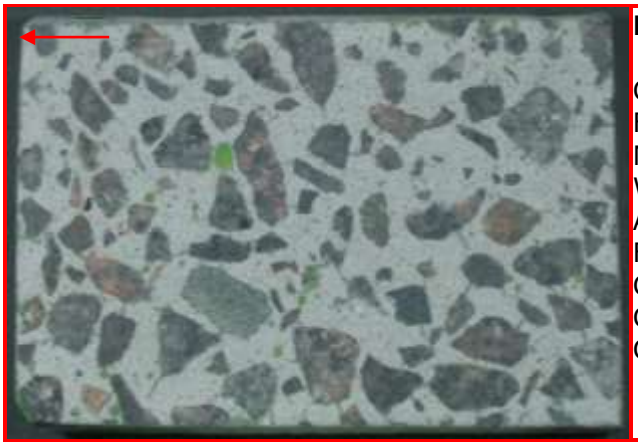
Micro-observations

No calcite layer on surface
Weak sign of carbonation observed
Generally uniform paste porosity through core with a weak increase towards the surface
W/c estimated to about 0,45
No cracks in surface
Very few cracks in paste as well as few adhesion cracks
Relatively poor air void structure, air content probably on target but air voids are highly clustered especially along aggregate

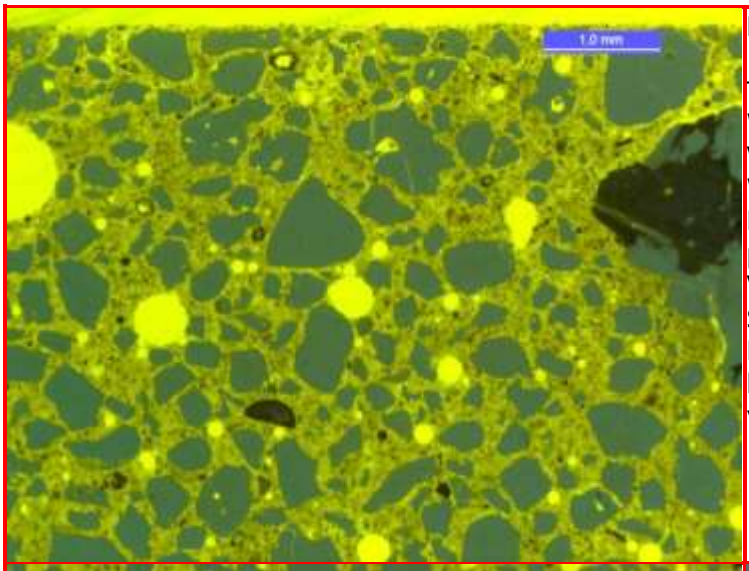




Concrete No.: **Femern D (SCC)** **Age: 28 days**

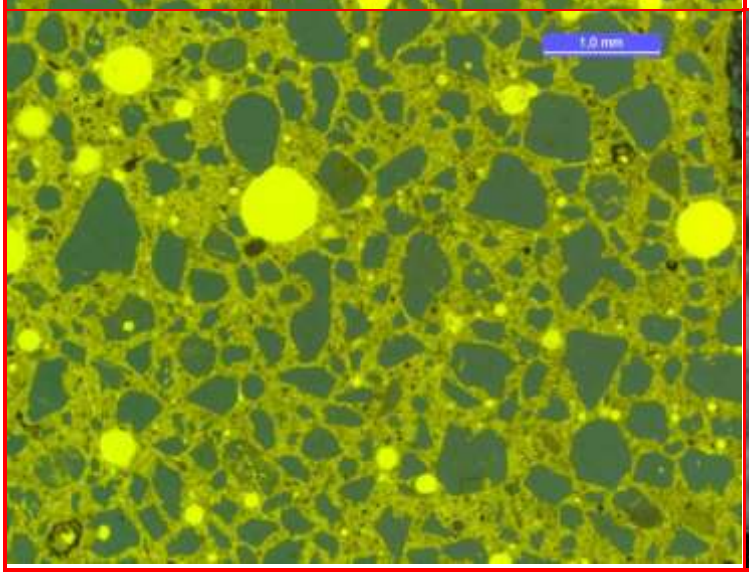


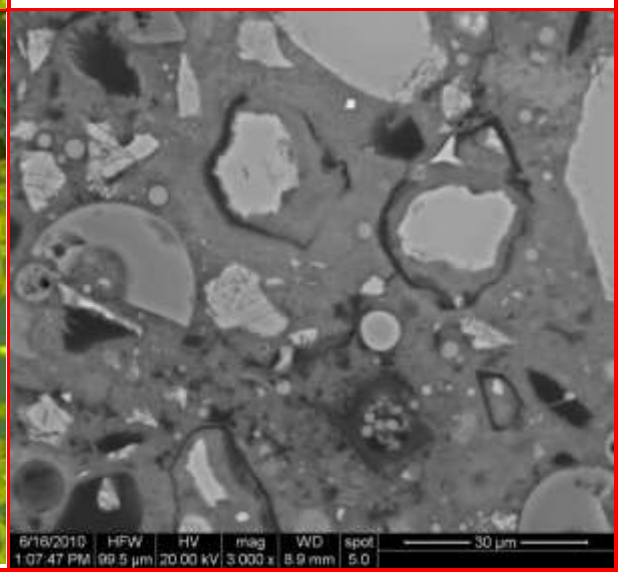
Mix Design		Fresh Properties	
CEM I 42,5 N	320	w/c	0,40
Fly ash	107	Air largeB, fresh%	4,3
Microsilica	0	Slump, mm	-
Water	149	Density, kg/m^3	2360
Air %	4,5	28 days, MPa	52,7
F. agg. 0/2	694		
C. agg. 4/8	357	Air, hard.%	2,6
C. agg. 8/16	720	Casting date	
C. agg. 16/22	0		



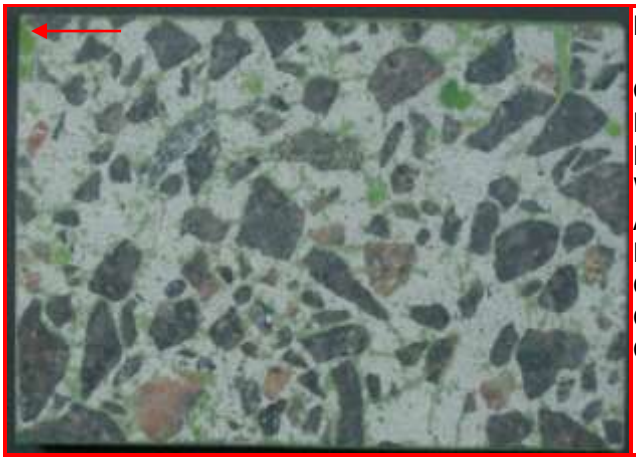
Micro-observations

Thin calcite layer on surface
Weak sign of carbonation observed
Very uniform paste porosity through core
W/c estimated to about 0,45
No cracks in surface except for 1 surface parallel crack 1.5mm under surface
Very few cracks in paste
Some adhesion cracks observed
Relatively low air void content, seem to be lower than target, few of the very small voids

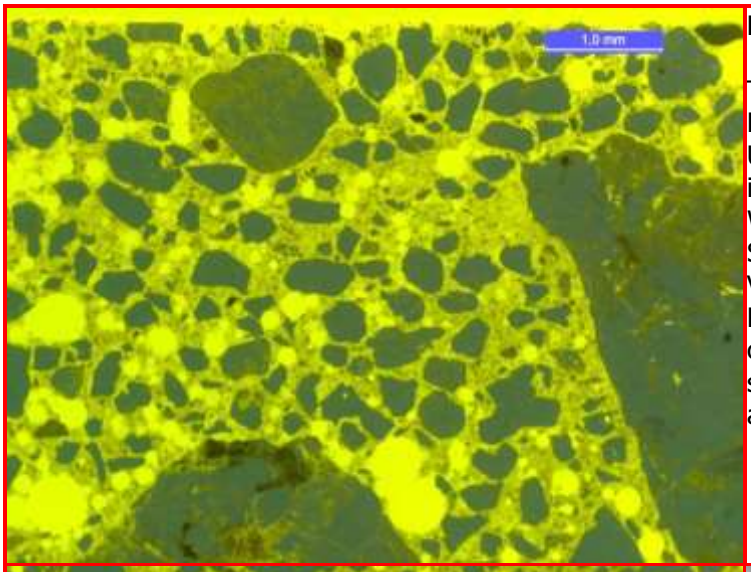




Concrete No.: **Femern E** **Age: 28 days**

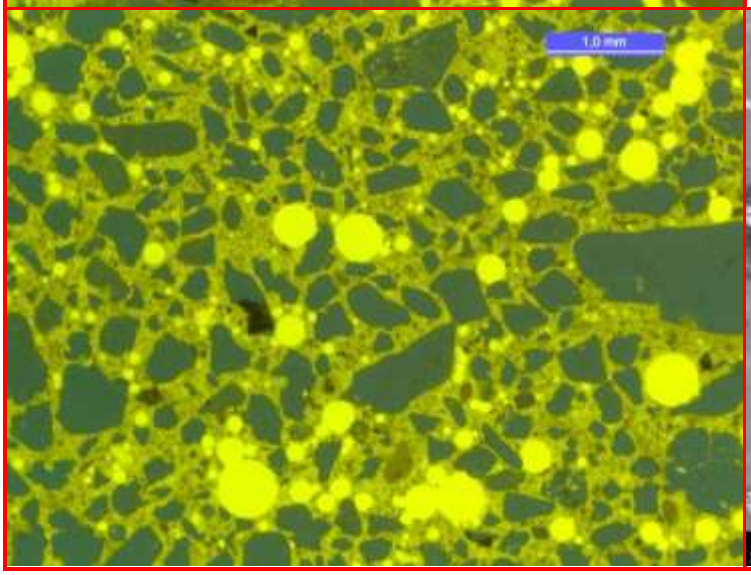


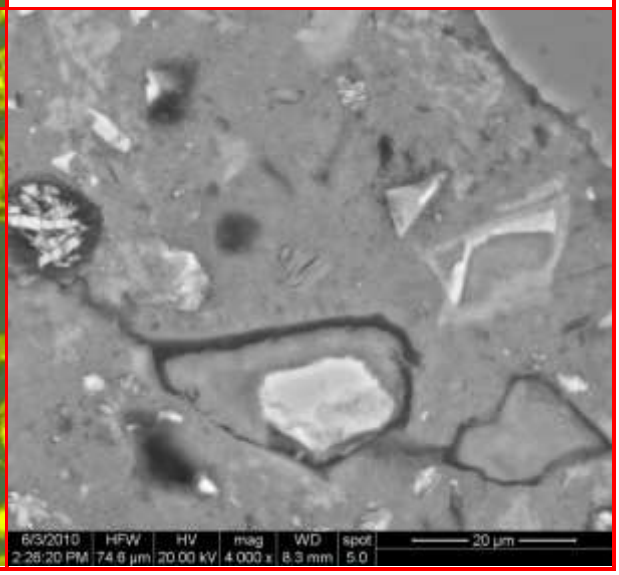
Mix Design		Fresh Properties	
CEM I 42,5 N	340	w/c	0,40
Fly ash	0	Air large B, fresh%	4,8
Microsilica	14	Slump, mm	140
Water	147	Density, kg/m^3	2350
Air %	4,5	28 days, MPa	56,4
F. agg. 0/2	695		
C. agg. 4/8	377	Air, hard.%	5,6
C. agg. 8/16	266	Casting date	
C. agg. 16/22	529		



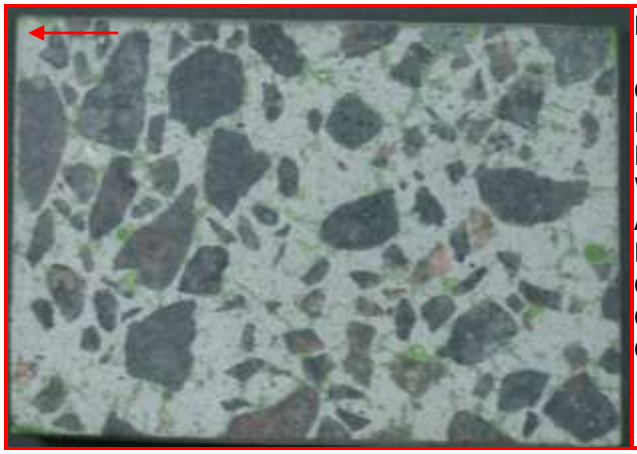
Micro-observations

Thin calcite layer on surface
No sign of carbonation
Uniform paste porosity through core, weak increase towards surface
W/c estimated to about 0,45
Some plastic cracks in surface
Very few cracks in paste
Relatively poor air void structure, air content probably on target but air voids are somewhat clustered especially along aggregate

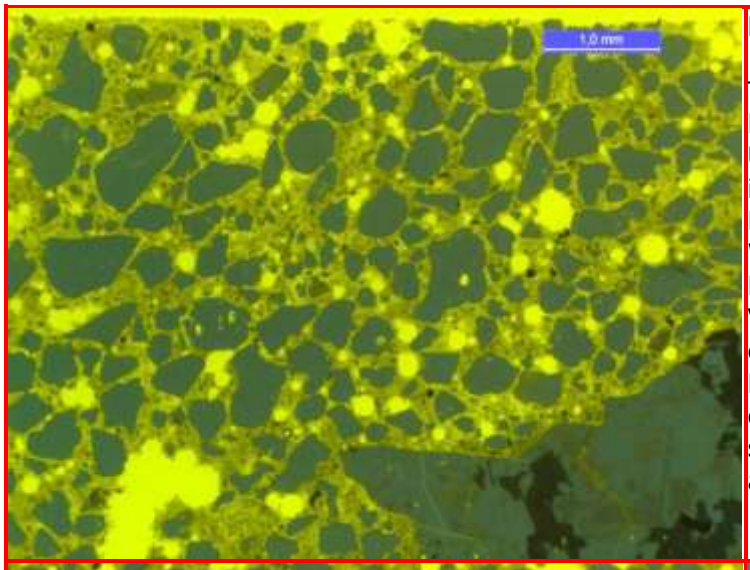




Concrete No.: **Femern F** **Age: 28 days**

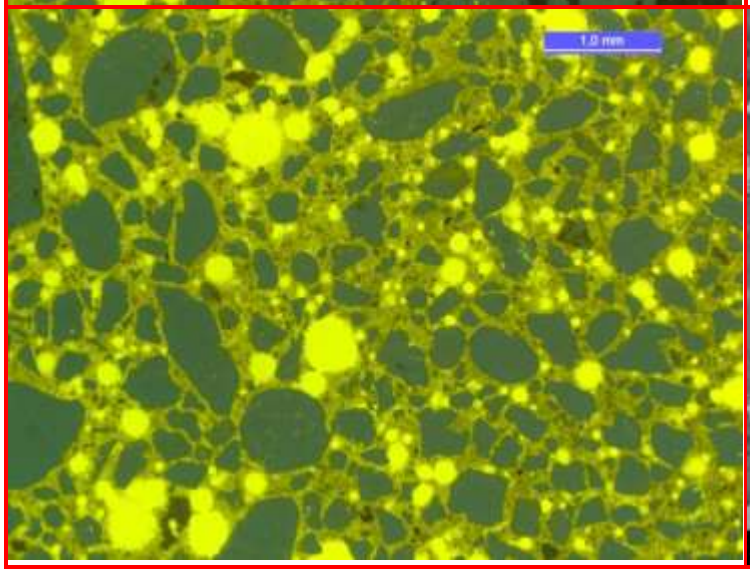


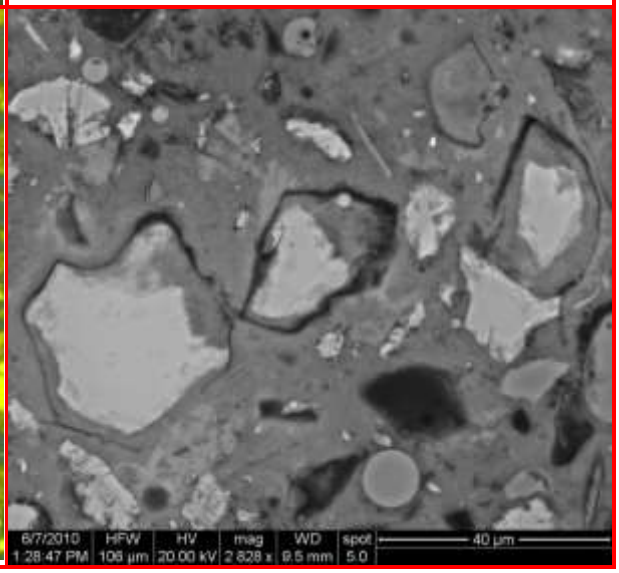
Mix Design		Fresh Properties	
CEM I 42,5 N	300	w/c	0,40
Fly ash	43	Air largeB, fresh%	5,2
Microsilica	14	Slump, mm	140
Water	140	Density, kg/m^3	2350
Air %	4,5	28 days, MPa	56,2
F. agg. 0/2	677		
C. agg. 4/8	377	Air, hard.%	3,9
C. agg. 8/16	272	Casting date	
C. agg. 16/22	543		



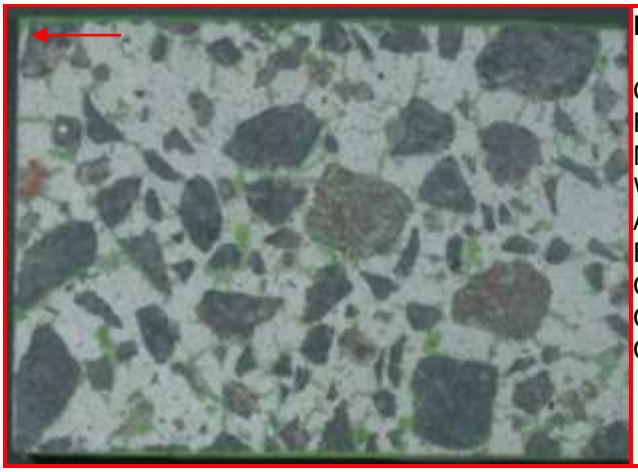
Micro-observations

Thin calcite layer on surface
No sign of carbonation
Uniform paste porosity through core, weak increase towards surface
Paste appears rather opaline
W/c estimated to about 0,45
No cracks in surface
Very few cracks in paste, dew adhesion cracks
Relatively poor air void structure, air content probably on target but air voids are somewhat clustered especially along aggregate

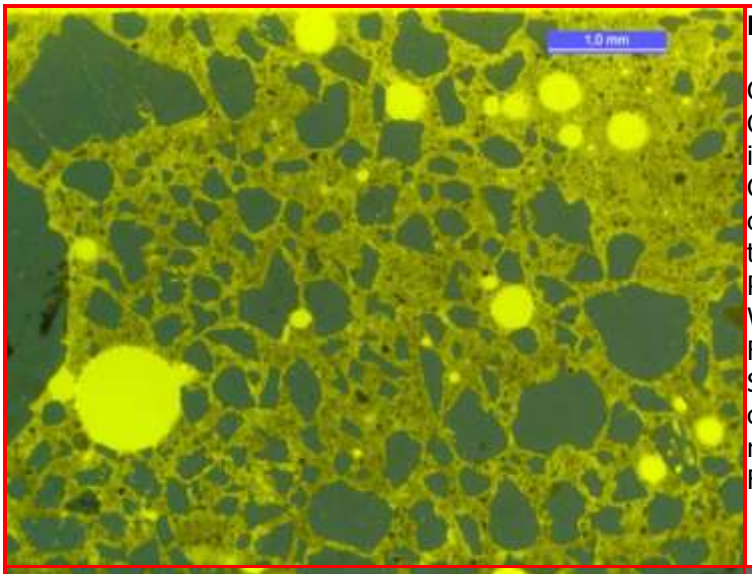




Concrete No.: **Femern G** **Age: 28 days**

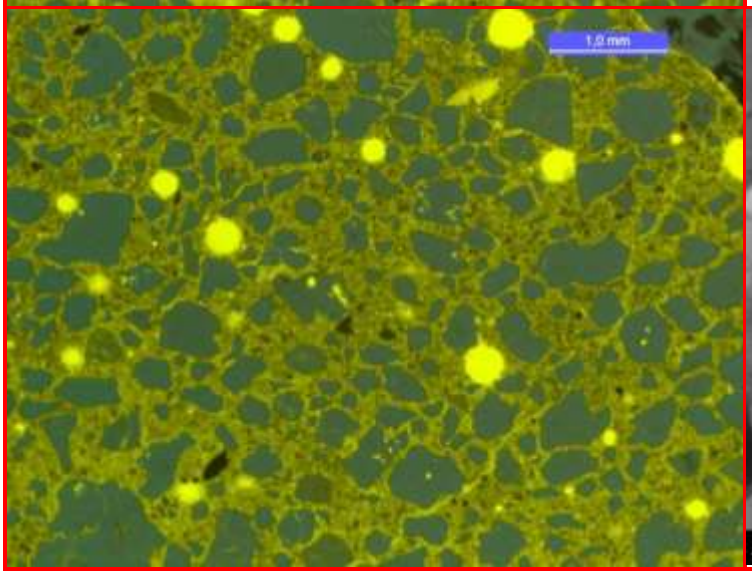


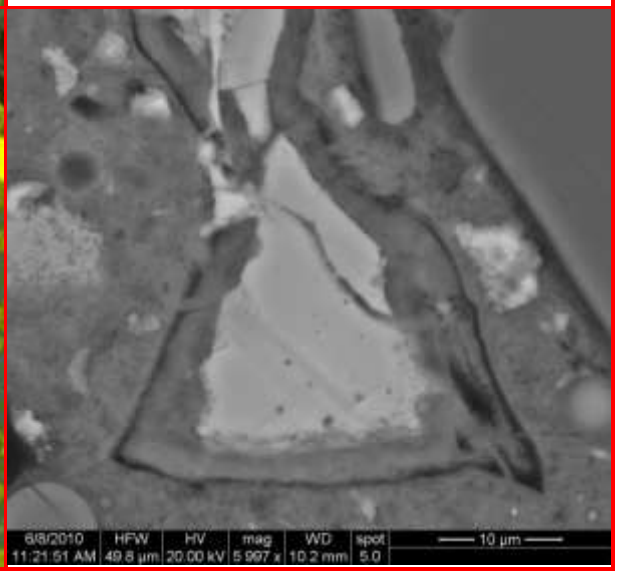
Mix Design		Fresh Properties	
CEM I 42,5 N	310	w/c	0,40
Fly ash	44	Air largeB, fresh%	2,1
Microsilica	15	Slump, mm	120
Water	145	Density, kg/m^3	2440
Air %	2	28 days, MPa	69,2
F. agg. 0/2	731		
C. agg. 4/8	386	Air, hard.%	2,3
C. agg. 8/16	266	Casting date	
C. agg. 16/22	530		



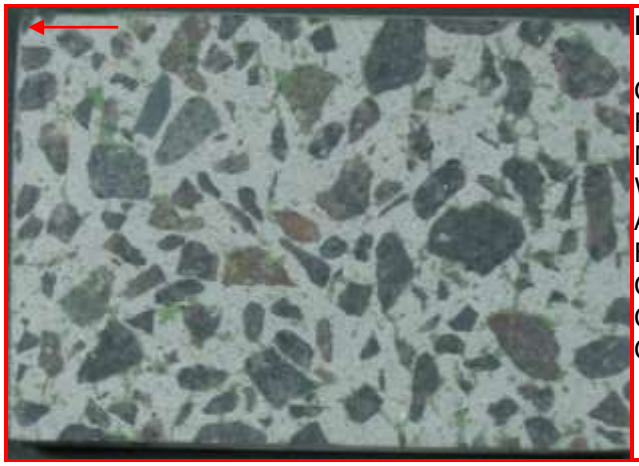
Micro-observations

Calcite layer on surface not observed
Carbonation to 0,3mm, 1,5mm along crack in surface
Generally uniform paste porosity through core, however with a distinct increase towards surface
Paste rich areas present
W/c estimated to about 0,45
Few cracks in surface
Some cracks in paste, and some adhesion cracks with CH, shrinkage cracks in paste rich areas
Few voids, as target

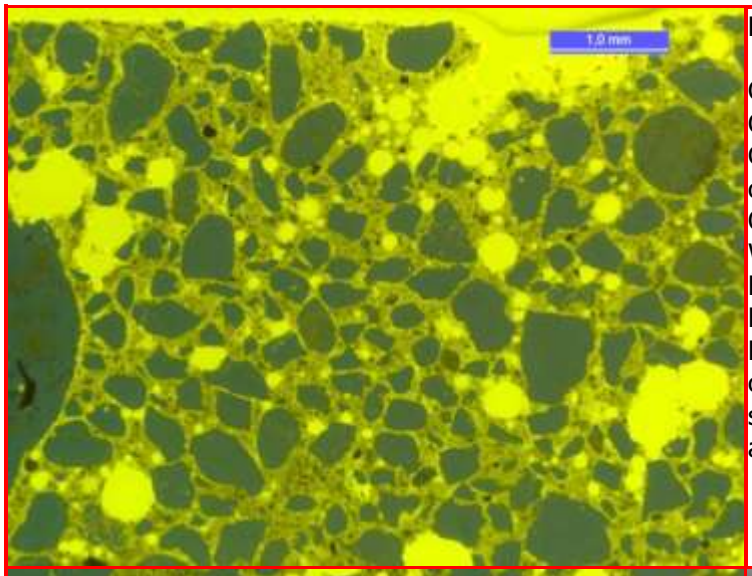




Concrete No.: **Femern H** **Age: 28 days**

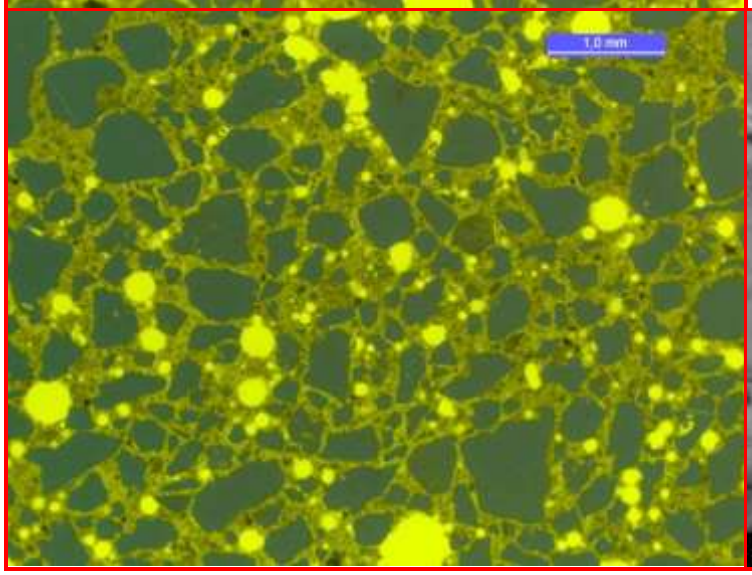


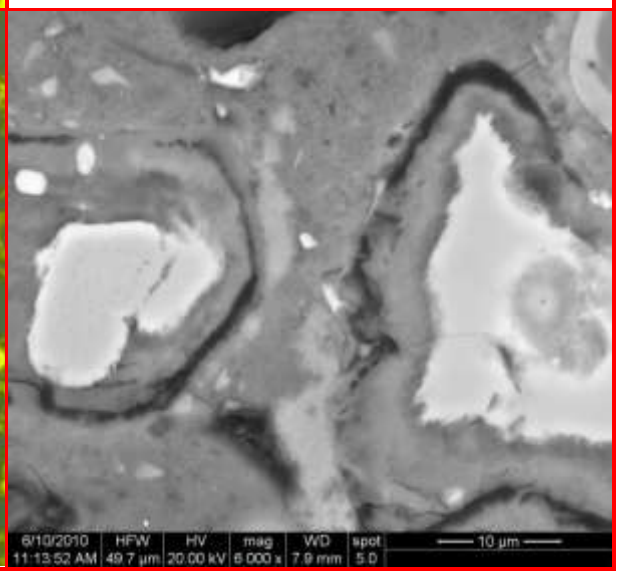
Mix Design		Fresh Properties	
CEM I 42,5 N	276	w/c	0,45
Fly ash	39	Air largeB, fresh%	4,9
Microsilica	13	Slump, mm	160
Water	145	Density, kg/m^3	2380
Air %	4,5	28 days, MPa	51,0
F. agg. 0/2	700		
C. agg. 4/8	380	Air, hard.%	4,1
C. agg. 8/16	268	Casting date	
C. agg. 16/22	534		



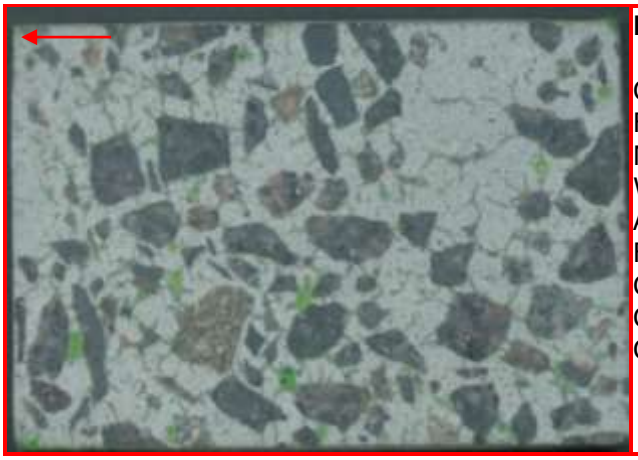
Micro-observations

Calcite layer on surface not observed
Carbonation not observed
Generally uniform paste porosity through core, weak increase towards surface
Opaline paste at surface
W/c estimated to about 0,45
Few adhesion cracks near surface
Few paste cracks
Relatively poor air void structure, air content probably on target but air voids are somewhat clustered especially along aggregate and at surface

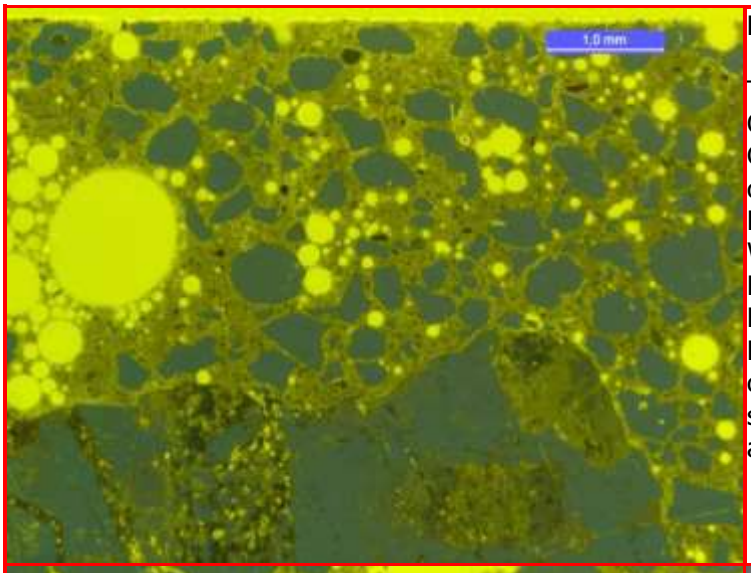




Concrete No.: **Femern I** **Age: 28 days**

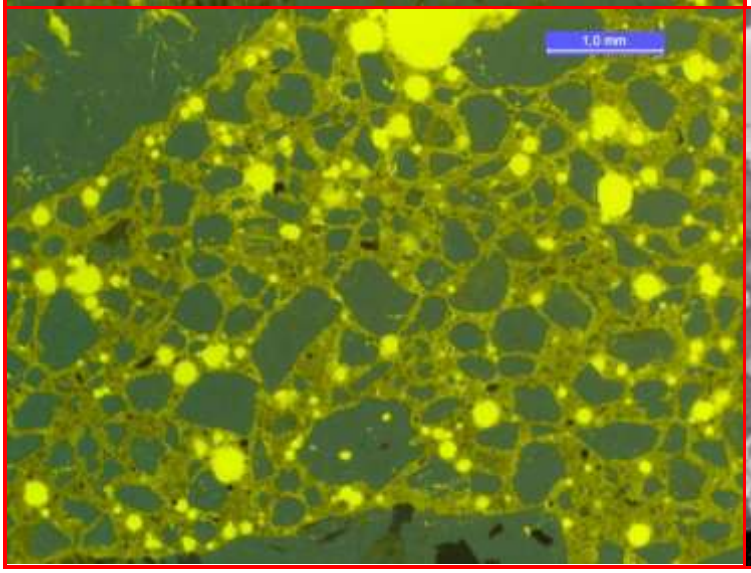


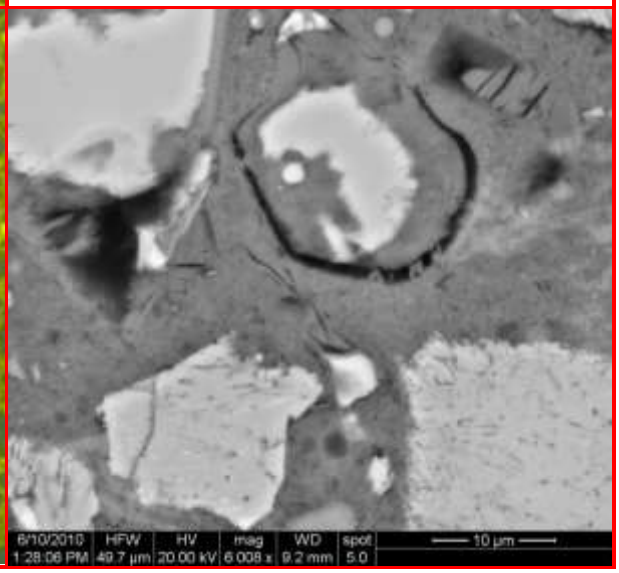
Mix Design		Fresh Properties	
CEM I 42,5 N	330	w/c	0,35
Fly ash	47	Air largeB, fresh%	5,7
Microsilica	16	Slump, mm	160
Water	135	Density, kg/m^3	2370
Air %	4,5	28 days, MPa	62,3
F. agg. 0/2	671		
C. agg. 4/8	374	Air, hard.%	3,7
C. agg. 8/16	270	Casting date	
C. agg. 16/22	538		



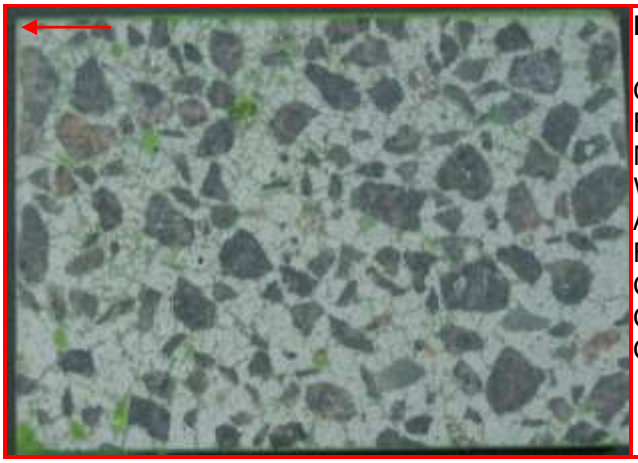
Micro-observations

Thin calcite layer on surface
Carbonation not observed
Generally uniform paste porosity through core, weak increase towards surface
Paste rich area around air clusters
W/c estimated to about 0,45
Few plastic cracks at surface
Few adhesion cracks with CH
Relatively poor air void structure, air content probably on target but air voids are somewhat clustered especially along aggregate

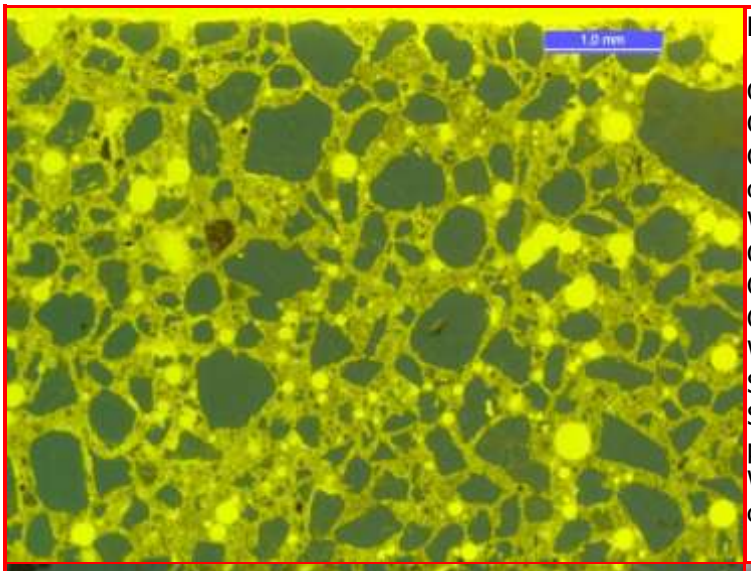




Concrete No.: **Femern J (SCC)** **Age: 28 days**

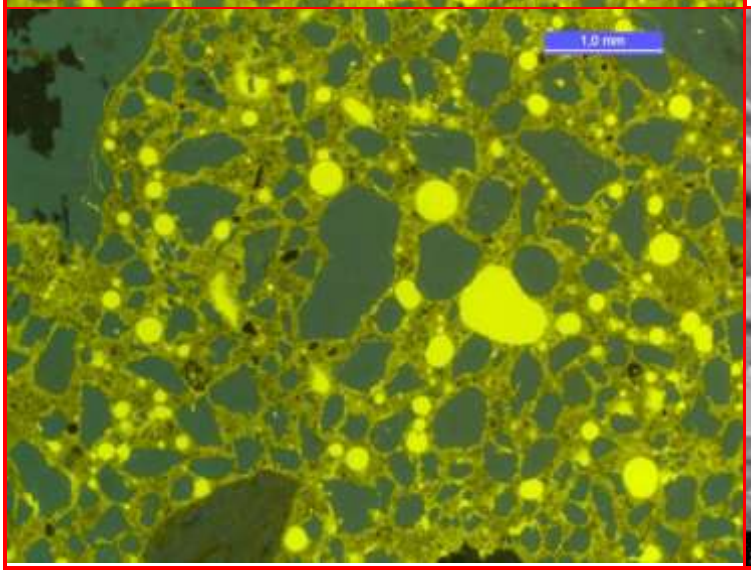


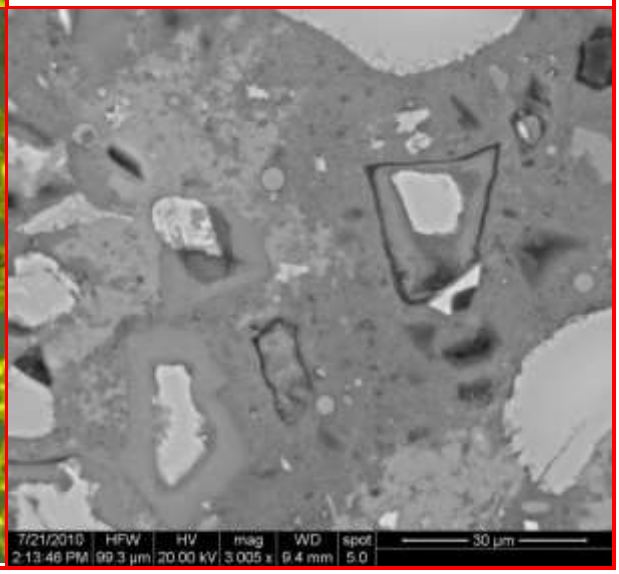
Mix Design		Fresh Properties	
CEM I 42,5 N	340	w/c	0,40
Fly ash	49	Air largeB, fresh%	3,5
Microsilica	16	Slump, mm	-
Water	159	Density, kg/m^3	2370
Air %	4,5	28 days, MPa	59,5
F. agg. 0/2	696		
C. agg. 4/8	359	Air TiB, hard.%	3,8*
C. agg. 8/16	722	Casting date	
C. agg. 16/22	0		



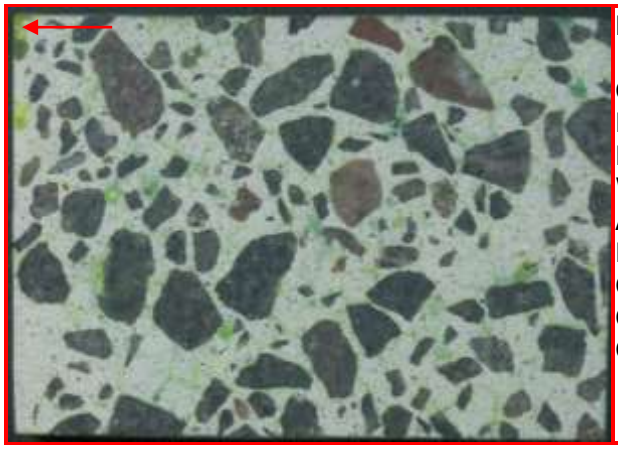
Micro-observations

Calcite layer on surface not present
Carbonation not observed
Generally uniform paste porosity through core, weak increase towards surface
Weakly opaline paste with relatively large CH
CH in adhesion cracks and small air voids
Occasionally paste rich
W/c estimated to about 0,45
Some cracks at surface
Some adhesion cracks throughout, few paste cracks
Well distributed air void structure, air content on target

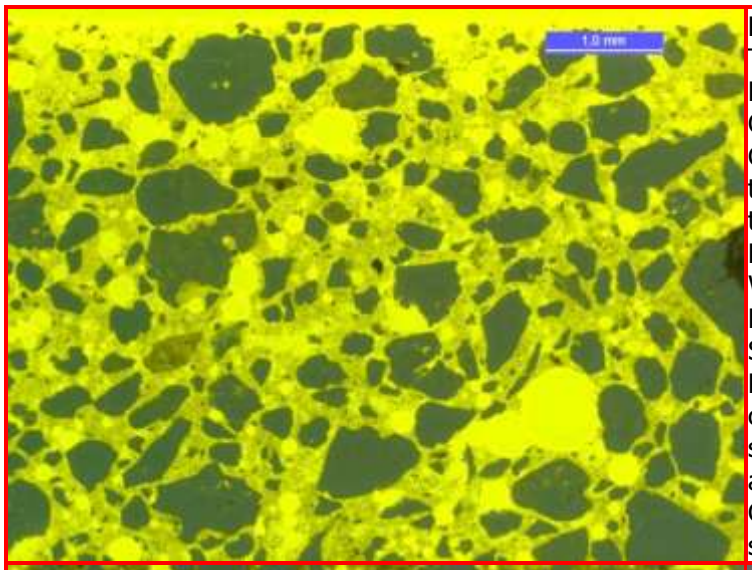




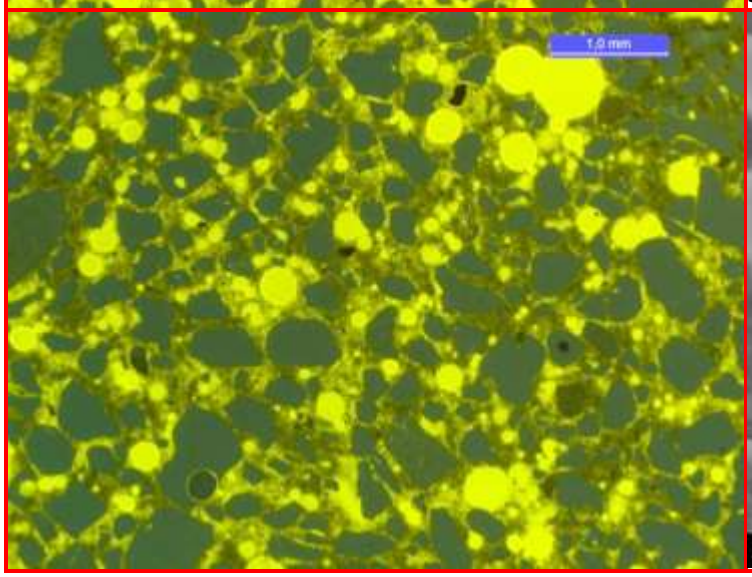
Concrete No.: **Femern K** **Age: 28 days**

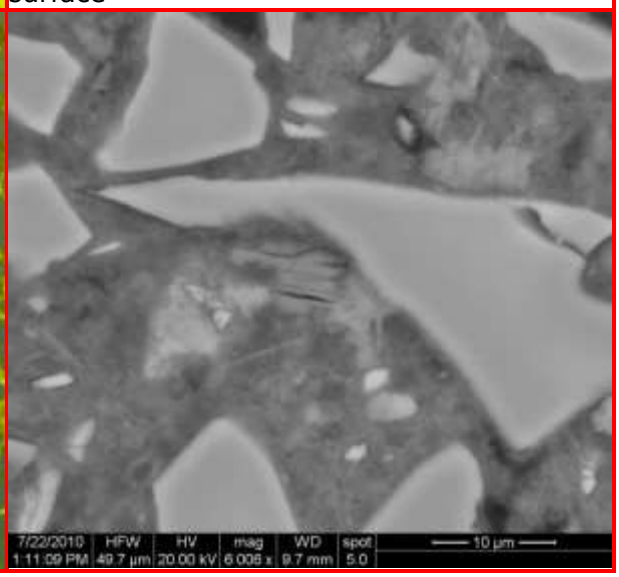


Mix Design		Fresh Properties	
CEM III/B 42,5N	360	w/c	0,40
Fly ash	0	Air largeB, fresh%	4,8
Microsilica	0	Slump, mm	160
Water	144	Density, kg/m^3	2320
Air %	4,5	28 days, MPa	55,6
F. agg. 0/2	689		
C. agg. 4/8	373	Air TiB, hard.%	4,0
C. agg. 8/16	263	Casting date	
C. agg. 16/22	525		

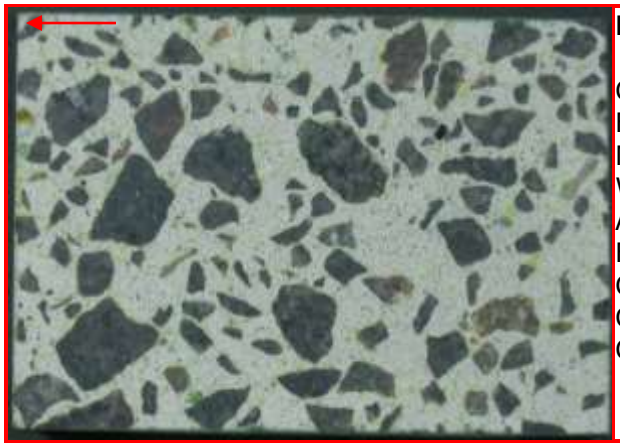


Micro-observations
Thin calcite layer at surface
Feathery phases in voids exposed at surface
Carbonation not observed
Generally inhomogeneous paste porosity through core (patchy). Distinct increase towards surface
Highly opaline paste, CH nearly invisible
W/c estimated to about 0,45
No cracks at surface
Some paste cracks
Relatively poor air void structure, air content probably on target but air voids are somewhat clustered especially along aggregate
Greenish paste at interior, light grey at surface

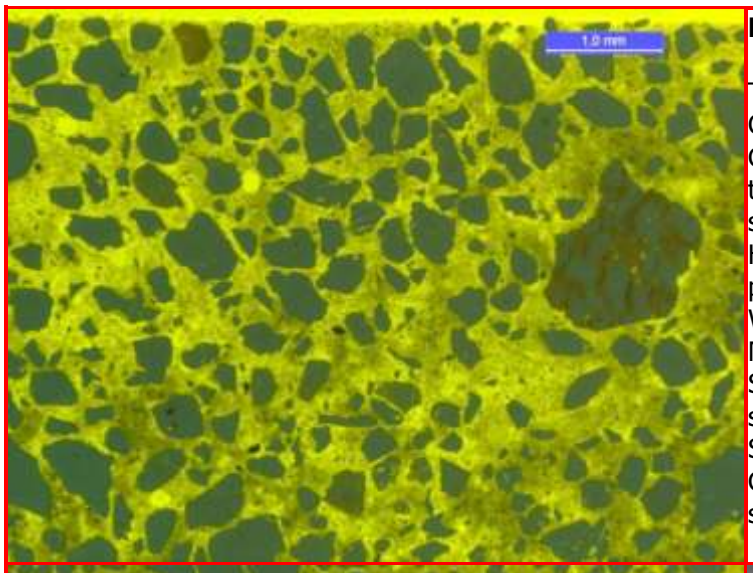




Concrete No.: **Femern L** **Age: 28 days**

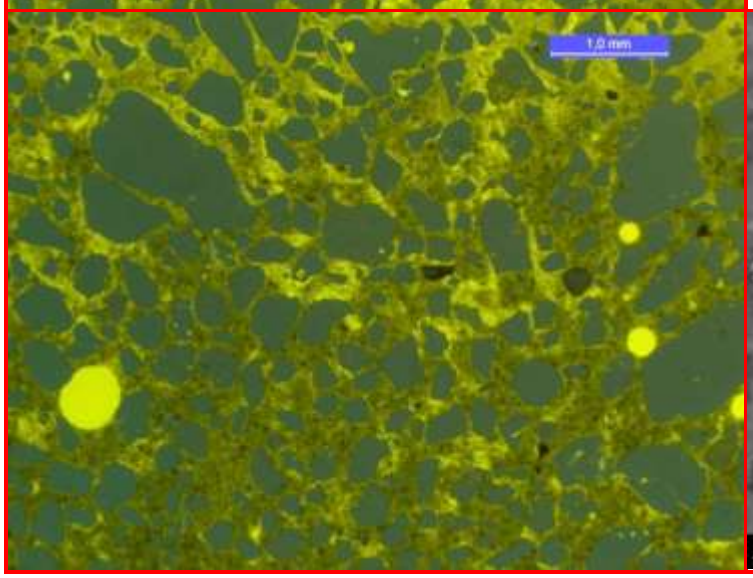


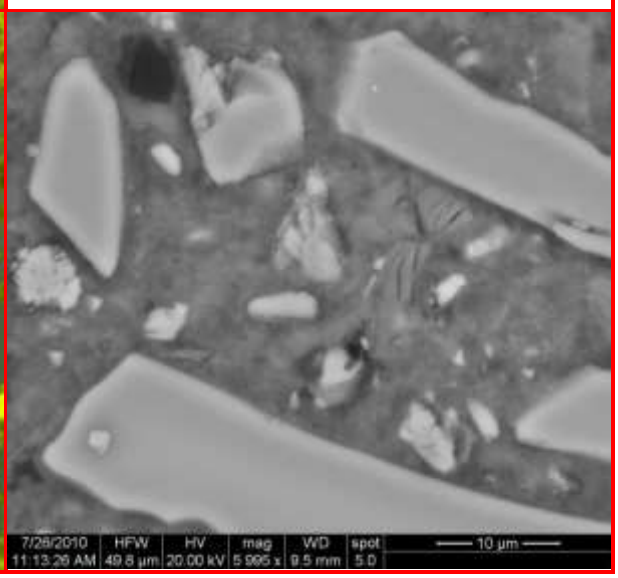
Mix Design		Fresh Properties	
CEM III/B 42,5N	375	w/c	0,40
Fly ash	0	Air largeB, fresh%	0,9
Microsilica	0	Slump, mm	100
Water	150	Density, kg/m^3	2460
Air %	2	28 days, MPa	68,8
F. agg. 0/2	702		
C. agg. 4/8	381	Air, hard.%	1,1
C. agg. 8/16	269	Casting date	
C. agg. 16/22	535		



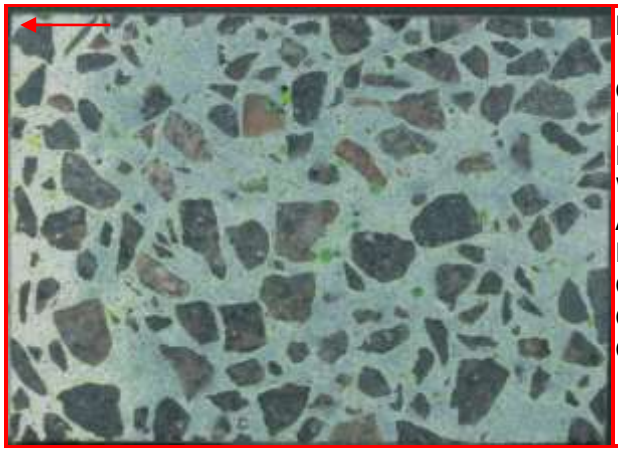
Micro-observations

Thin calcite layer at surface
Carbonation not observed
Generally inhomogeneous paste porosity through core. Porosity increases towards surface
Highly opaline paste, large CH crystals in paste, voids and adhesion cracks.
W/c estimated to about 0,40
No cracks at surface
Some adhesion cracks, especially near surface
Sign of bleeding pockets
Greenish paste at interior, light grey at surface

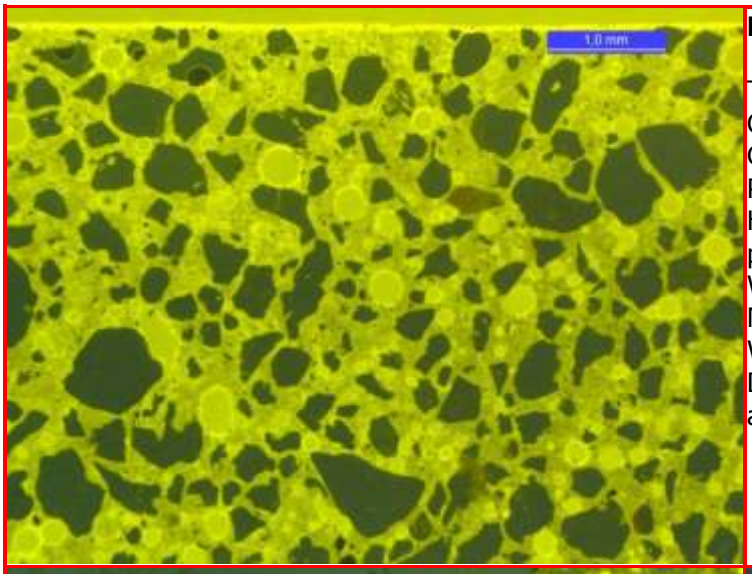




Concrete No.: **Femern M (SCC)** **Age: 28 days**

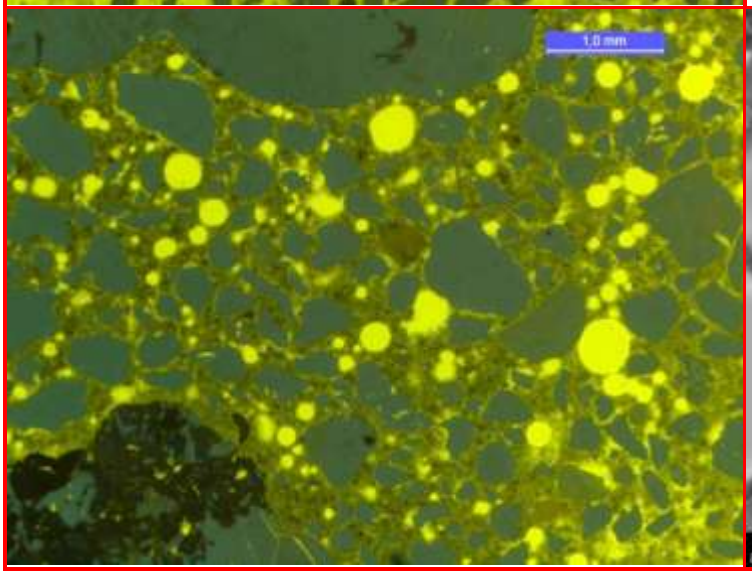


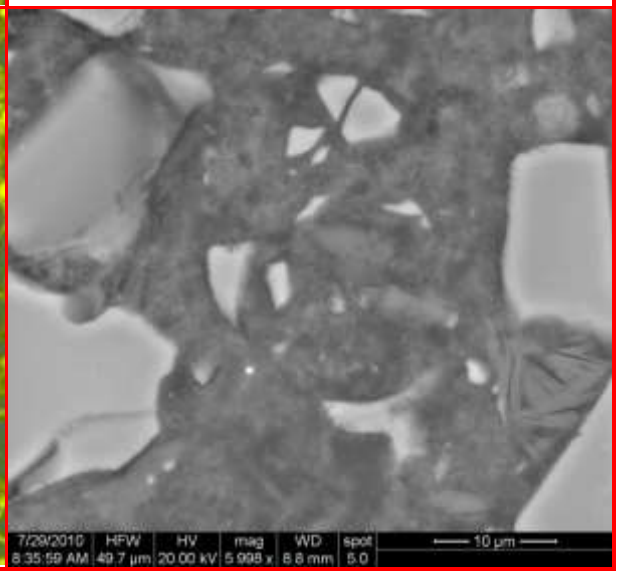
Mix Design		Fresh Properties	
CEM III/B 42,5N	410	w/c	0,40
Fly ash	0	Air largeB, fresh%	4,8
Microsilica	0	Slump, mm	-
Water	164	Density, kg/m^3	2320
Air %	4,5	28 days, MPa	52,9
F. agg. 0/2	686		
C. agg. 4/8	353	Air TiB, hard.%	4,4
C. agg. 8/16	712	Casting date	
C. agg. 16/22	-	Storage water	



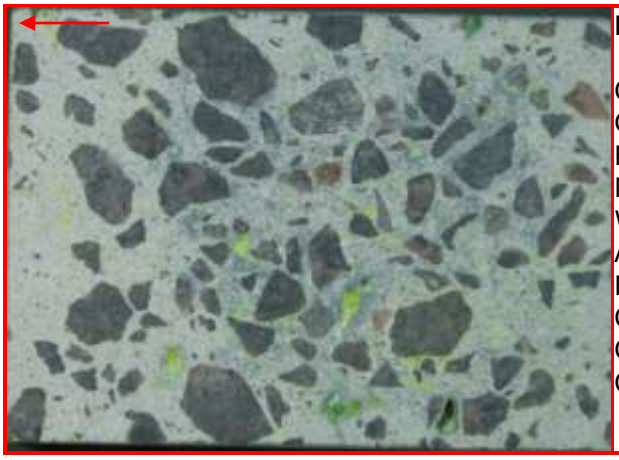
Micro-observations

Thin calcite layer at surface
Carbonation not observed
Generally inhomogeneous paste porosity
Porosity distinctly increases towards surface
Highly opaline paste, large CH crystals in paste and voids.
W/c estimated to about 0,40
No cracks at surface or inside concrete
Well distributed air void system
Distinct greenish paste at interior, light grey at surface (upper 24mm)

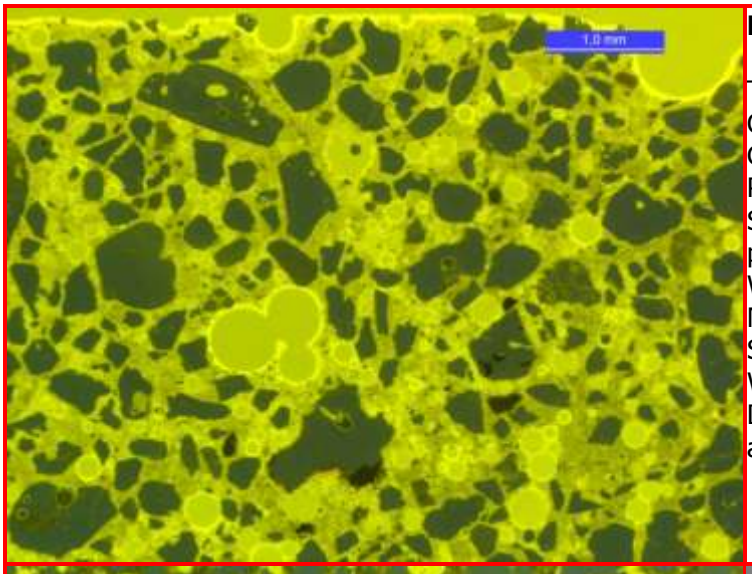




Concrete No.: **Femern N** **Age: 28 days**

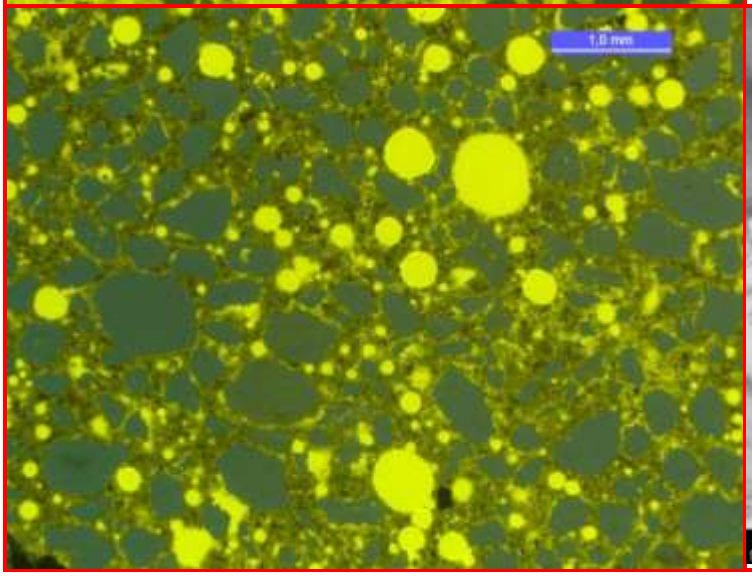


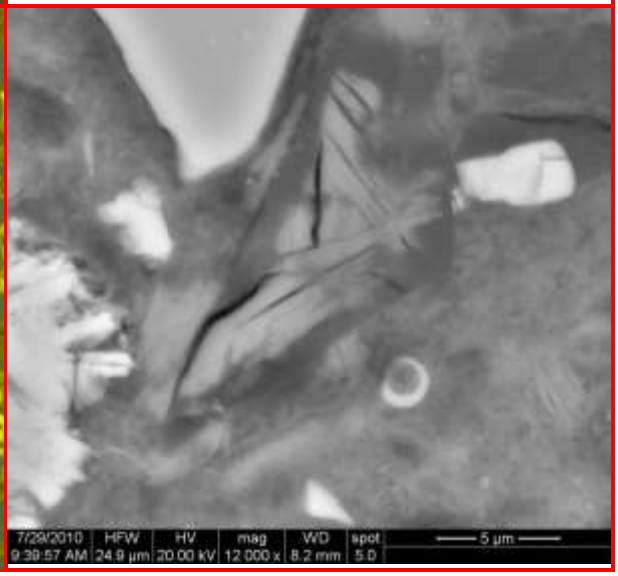
Mix Design		Fresh Properties	
CEM I 52,5 N	108	w/c	0,40
GGBFS	252	Air largeB, fresh%	6,1
Fly ash	0	Slump, mm	180
Microsilica	0	Density, kg/m^3	2300
Water	144	28 days, MPa	58,5
Air %	4,5		
F. agg. 0/2	689	Air TiB, hard.%	4,3
C. agg. 4/8	374	Casting date	
C. agg. 8/16	263		
C. agg. 16/22	525		



Micro-observations

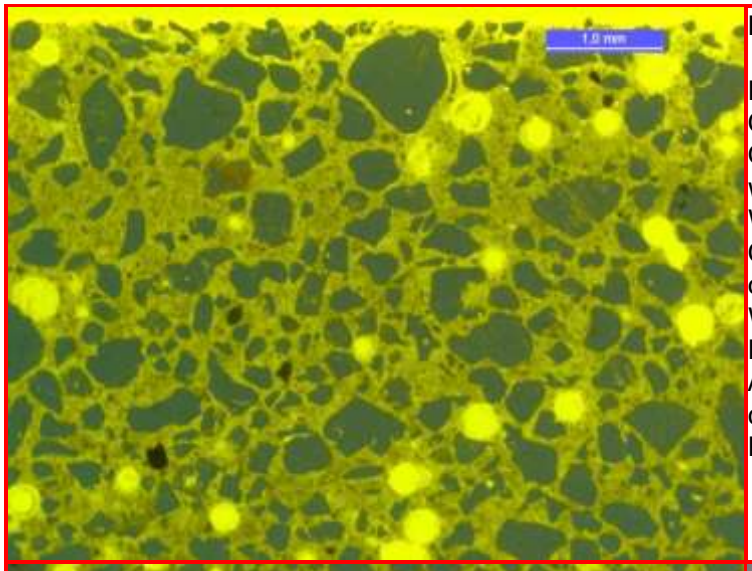
Thin calcite layer at surface
Carbonation not observed
Generally inhomogeneous paste porosity
Porosity distinctly increases towards surface
Somewhat opaline paste, CH crystals in paste, voids and adhesion cracks.
W/c estimated to about 0,40
No cracks at surface
Some adhesion cracks observed
Well distributed air void system
Distinct greenish paste at interior, light grey at surface (upper 30mm)





Concrete No.: **Femern O** **Age: 28 days**

Mix Design		Fresh Properties	
CEM I 42,5 N	340	w/c	0,40
GGBFS	0	Air largeB, fresh%	1,7
Fly ash	0	Slump, mm	150
Microsilica	14	Density, kg/m^3	2420
Water	147	28 days, MPa	56,7
Air %	4,5		
F. agg. 0/2	695	Air TiB, hard.%	3,5
C. agg. 4/8	377	Casting date	
C. agg. 8/16	266		
C. agg. 16/22	529		



Micro-observations

Plane surface
Carbonation not observed
Generally homogeneous paste porosity, weakly increasing towards surface
Well hydrated cement
CH crystals in paste, voids and adhesion cracks
W/c estimated to about 0,40
No cracks observed
Air voids relatively large, unevenly distributed, tendency to agglomerate
Remnants of polymers in air voids