

PEPLIN INC
Form SC 13D
January 23, 2009

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No.)***

Peplin, Inc.
(Name of Issuer)
Common Stock
(Title of Class of Securities)
U7117K107
(CUSIP Number)
Vaughn M. Kailian
MPM Asset Management
The John Hancock Tower
200 Clarendon Street, 54th Floor
Boston, MA 02116
Telephone: (617) 425-9200
(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)
January 13, 2009
(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box. o

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter

disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be filed for the purpose of Section 18 of the Securities Exchange Act of 1934 (Act) or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures IV Q-P, L.P.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 3,448,426(2)

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 3,448,426(2)

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,448,426(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

21.7%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

(1) MPM BioVentures IV-QP, L.P. (BV IV QP), MPM BioVentures IV GmbH & Co. Beteiligungs KG (BV IV KG), MPM Asset Management Investors BV4 LLC (AM LLC), MPM BioVentures IV GP LLC (BV IV GP), MPM BioVentures IV LLC (BV IV LLC), MPM BioVentures III, L.P. (BV III), MPM BioVentures III-QP, L.P. (BV III QP), MPM BioVentures III GmbH & Co. Beteiligungs KG (BV III KG), MPM BioVentures III Parallel Fund, L.P. (BV III PF), MPM Asset Management Investors 2004 BVIII LLC (AM BVIII LLC), MPM BioVentures Strategic Fund, L.P. (BV SF), MPM BioVentures III, GP, L.P. (BV III GP) and MPM BioVentures III, LLC (BV III LLC) (collectively, the MPM Entities) and Ansbert Gadicke, Luke Evnin, Steven St. Peter, William Greene, James Paul Scopa, Ashley Dombkowski, Vaughn Kailian and John Vander Vort (collectively, the Listed Persons and together with the MPM Entities, the Filing Persons). The Listed Persons are members of BV IV LLC and AM LLC and Luke Evnin and Ansbert Gadicke are Series A members of BV III LLC and managers of AM BV III LLC. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 361,668 shares of Common Stock underlying warrants and 382,197 shares of Common Stock underlying options to purchase CHESSE Depository Interests (CDIs), which are exercisable within 60 days of the date of this filing. CDIs are units of beneficial ownership in shares of Common Stock held by CHESSE Depository Nominees Pty Limited, a wholly-owned subsidiary of the Australian Stock Exchange. The CDIs are economically equivalent to shares of Common Stock of the Issuer on a 1-for-20 basis. CDIs are convertible at the option of the holders thereof into shares of Common Stock of the Issuer on a 1-for-20 basis.

(3) This percentage is calculated based upon 15,141,121 shares of the Issuer s Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Securities Exchange Act of 1934, as amended (the Exchange Act), as set forth in the Issuer s final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures IV GmbH & Co. Beteiligungs KG

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Germany

7. SOLE VOTING POWER

NUMBER OF 132,848(2)

8. SHARES BENEFICIALLY OWNED BY EACH

SHARED VOTING POWER

OWNED BY 0

9. SOLE DISPOSITIVE POWER

REPORTING

PERSON 132,848(2)

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

132,848(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

0.9%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 13,933 shares of Common Stock underlying warrants and 14,724 shares of Common Stock underlying options to purchase CDIs, which are exercisable within 60 days of the date of this filing.

(3) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

1. MPM Asset Management Investors BV4 LLC

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

2. (a)
(b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)
WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION
Delaware

7. SOLE VOTING POWER

NUMBER OF 98,054(2)

8. SHARES SHARED VOTING POWER
BENEFICIALLY OWNED BY 0

EACH REPORTING PERSON	9.	SOLE DISPOSITIVE POWER
		98,054(2)
WITH:	10.	SHARED DISPOSITIVE POWER
		0

11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

98,054(2)

12. CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

o

13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

0.6%(3)

14. TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

OO

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 10,284 shares of Common Stock underlying warrants and 10,868 shares of Common Stock underlying options to purchase CDIs, which are exercisable within 60 days of the date of this filing.

(3) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures IV GP LLC

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 0

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

3,581,274(2)

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,581,274(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,581,274(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

22.5%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

OO

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 2,704,561 shares of Common Stock held by BV IV QP and 104,191 shares of Common Stock held by BV IV KG. Also includes (i) 361,668 shares of Common Stock underlying warrants and 382,197 shares of Common Stock underlying options to purchase CDIs held by BV IV QP, which are exercisable within 60 days of the date of this filing and (ii) 13,933 shares of Common Stock underlying warrants and 14,724 shares of Common Stock underlying options to purchase CDIs held by BV IV KG, which are exercisable within 60 days of the date of this filing. BV IV GP and BV IV LLC are the direct and indirect general partners of BV IV QP and BV IV KG.

(3) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures IV LLC

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(D) OR 2(E)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 0

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

3,679,328(2)

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,679,328(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.1%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

OO

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 2,704,561 shares of Common Stock held by BV IV QP, 104,191 shares of Common Stock held by BV IV KG and 76,902 shares of Common Stock held by AM LLC. Also includes (i) 361,668 shares of Common Stock underlying warrants and 382,197 shares of Common Stock underlying options to purchase CDIs held by BV IV QP, which are exercisable within 60 days of the date of this filing, (ii) 13,933 shares of Common Stock underlying warrants and 14,724 shares of Common Stock underlying options to purchase CDIs held by BV IV KG, which are exercisable within 60 days of the date of this filing and (iii) 10,284 shares of Common Stock underlying warrants and 10,868 shares of Common Stock underlying options to purchase CDIs held by AM LLC, which are exercisable within 60 days of the date of this filing. BV IV GP and BV IV LLC are the direct and indirect general partners of BV IV QP and BV IV KG and BV IV LLC is the manager of AM LLC.

(3) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures III, L.P.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(D) OR 2(E)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 25,510

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 25,510

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

25,510

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

0.2%(2)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

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(2) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures III-QP, L.P.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(D) OR 2(E)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 379,381

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 379,381

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

379,381

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

2.5%(2)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

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(2) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures III GmbH & Co. Beteiligungs KG

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(D) OR 2(E)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Germany

7. SOLE VOTING POWER

NUMBER OF 32,061

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 32,061

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

32,061

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

0.2% (2)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

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(2) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures III Parallel Fund, L.P.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(D) OR 2(E)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 11,456

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 11,456

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

11,456

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

0.1% (2)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

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(2) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM Asset Management Investors 2004 BVIII LLC

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 9,017

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 9,017

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

9,017

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

0.1%(2)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

OO

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures Strategic Fund, L.P.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 62,375

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

0

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 62,375

WITH: SHARED DISPOSITIVE POWER

10.

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

62,375

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

0.4%(2)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures III GP, L.P.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 0

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

510,783(2)

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

510,783(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

510,783(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

3.4%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

PN

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 25,510 shares of Common Stock held by BV III, 379,381 shares of Common Stock held by BV III QP, 32,061 shares of Common Stock held by BV III KG, 11,456 shares of Common Stock held by BV III PF, and 62,375 shares of Common Stock held by BV SF. BV III GP and BV III LLC are the direct and indirect general partners of BV III, BV III QP, BV III KG, BV III PF and BV SF.

(3) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

MPM BioVentures III LLC

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

WC

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

7. SOLE VOTING POWER

NUMBER OF 0

8. SHARES BENEFICIALLY OWNED BY

SHARED VOTING POWER

510,783(2)

9. EACH SOLE DISPOSITIVE POWER

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

510,783(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

510,783(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

3.4%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

OO

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

Ansbert Gadicke

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8.

SHARES BENEFICIALLY OWNED BY 4,199,128(2)

SOLE DISPOSITIVE POWER

9.

EACH

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

4,199,128(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

4,199,128(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

26.4%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

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(3) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common Stock outstanding as of December 9, 2008, as adjusted pursuant to Rule 13d-3(d)(1) promulgated under the Exchange Act, as set forth in the Issuer's final prospectus dated January 20, 2009, filed with the Securities and Exchange Commission on January 20, 2009.

CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

Luke Evnin

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8.

SHARES BENEFICIALLY OWNED BY 4,199,128(2)

SOLE DISPOSITIVE POWER

9.

EACH

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

4,199,128(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

4,199,128(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

26.4%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

(2) Includes 2,704,561 shares of Common Stock held by BV IV QP, 104,191 shares of Common Stock held by BV IV KG and 76,902 shares of Common Stock held by AM LLC. Also includes (i) 361,668 shares of Common Stock underlying warrants and 382,197 shares of Common Stock underlying options to purchase CDIs held by BV IV QP, which are exercisable within 60 days of the date of this filing, (ii) 13,933 shares of Common Stock underlying warrants and 14,724 shares of Common Stock underlying options to purchase CDIs held by BV IV KG, which are exercisable within 60 days of the date of this filing and (iii) 10,284 shares of Common Stock underlying warrants and 10,868 shares of Common Stock underlying options to purchase CDIs held by AM LLC, which are exercisable within 60 days of the date of this filing. BV IV GP and BV IV LLC are the direct and indirect general partners of BV IV QP and BV IV KG and BV IV LLC is the manager of AM LLC. The Reporting Person is a member of BV IV LLC. Also includes 25,510 shares of Common Stock held by BV III, 379,381 shares of Common Stock held by BV III QP, 32,061 shares of Common Stock held by BV III KG, 11,456 shares of Common Stock held by BV III PF, 62,375 shares of Common Stock held by BV SF and 9,017 shares of Common Stock held by AM BVIII LLC. BV III GP and BV III LLC are the direct and indirect general partners of BV III, BV III QP, BV III KG, BV III PF and BV SF. The Reporting Person is a Series A member of BV III LLC and a manager of AM BV III LLC.

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

Steven St. Peter

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8. SHARES

BENEFICIALLY OWNED BY 3,679,328(2)

SOLE DISPOSITIVE POWER

EACH

9.

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,679,328(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.1%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

William Greene

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
(b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8.

SHARES BENEFICIALLY OWNED BY 3,679,328(2)

SOLE DISPOSITIVE POWER

9.

EACH

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,679,328(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.1%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

James Paul Scopa

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 20,000(2)

SHARED VOTING POWER

8. SHARES BENEFICIALLY OWNED BY

3,679,328(3)

SOLE DISPOSITIVE POWER

9.

EACH

REPORTING

PERSON 20,000(2)

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(3)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,699,328(2)(3)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.2%(4)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

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(2) Represents shares of Common Stock underlying options which are exercisable within 60 days of the date of this filing.

(3) Includes 2,704,561 shares of Common Stock held by BV IV QP, 104,191 shares of Common Stock held by BV IV KG and 76,902 shares of Common Stock held by AM LLC. Also includes (i) 361,668 shares of Common Stock underlying warrants and 382,197 shares of Common Stock underlying options to purchase CDIs held by BV IV QP, which are exercisable within 60 days of the date of this filing, (ii) 13,933 shares of Common Stock underlying warrants and 14,724 shares of Common Stock underlying options to purchase CDIs held by BV IV KG, which are exercisable within 60 days of the date of this filing and (iii) 10,284 shares of Common Stock underlying warrants and 10,868 shares of Common Stock underlying options to purchase CDIs held by AM LLC, which are exercisable within 60 days of the date of this filing. BV IV GP and BV IV LLC are the direct and indirect general partners of BV IV QP and BV IV KG and BV IV LLC is the manager of AM LLC. The Reporting Person is a member of BV IV LLC.

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

Ashley Dombkowski

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8.

SHARES BENEFICIALLY OWNED BY 3,679,328(2)

SOLE DISPOSITIVE POWER

9.

EACH

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,679,328(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.1%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

Vaughn M. Kailian

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8. SHARES
BENEFICIALLY OWNED BY

3,679,328(2)

EACH SOLE DISPOSITIVE POWER

9.

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,679,328(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.1%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

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CUSIP No. U7117K107

1. NAME OF REPORTING PERSONS. I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S)
(ENTITIES ONLY)

John Vander Vort

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

- (a)
- (b) (1)

3. SEC USE ONLY

4. SOURCE OF FUNDS (SEE INSTRUCTIONS)

OO

5. CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS
2(d) OR 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

SOLE VOTING POWER

7.

NUMBER OF 0

SHARED VOTING POWER

8. SHARES BENEFICIALLY OWNED BY

3,679,328(2)

SOLE DISPOSITIVE POWER

EACH

9.

REPORTING

PERSON 0

WITH: SHARED DISPOSITIVE POWER

10.

3,679,328(2)

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

11.

3,679,328(2)

CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

12.

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

13.

23.1%(3)

TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

14.

IN

(1) This Schedule is filed by the MPM Entities and the Listed Persons. The MPM Entities and the Listed Persons expressly disclaim status as a group for purposes of this Schedule 13D.

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Item 1. Security and Issuer.

This Schedule 13D (this Schedule 13D) relates to the common stock, par value \$0.001 per share (the Common Stock), of Peplin, Inc. (the Issuer). The Issuer's principal executive office is located at 6475 Christie Avenue, Emeryville, CA 94608.

Item 2. Identity and Background

(a) The entities and persons filing this statement are MPM BioVentures IV-QP, L.P. (BV IV QP), MPM BioVentures IV GmbH & Co. Beteiligungs KG (BV IV KG), MPM Asset Management Investors BV4 LLC (AM LLC), MPM BioVentures IV GP LLC (BV IV GP), MPM BioVentures IV LLC (BV IV LLC), MPM BioVentures III, L.P. (BV III), MPM BioVentures III-QP, L.P. (BV III QP), MPM BioVentures III GmbH & Co. Beteiligungs KG (BV III KG), MPM BioVentures III Parallel Fund, L.P. (BV III PF), MPM Asset Management Investors 2004 BVIII LLC (AM BVIII LLC), MPM BioVentures Strategic Fund, L.P. (BV SF), MPM BioVentures III, GP, L.P. (BV III GP) and MPM BioVentures III, LLC (BV III LLC) (collectively, the MPM Entities) and Ansbert Gadicke, Luke Evnin, Steven St. Peter, William Greene, James Paul Scopa, Ashley Dombkowski, Vaughn Kailian and John Vander Vort (collectively, the Listed Persons and together with the MPM Entities, the Filing Persons).

(b) The address of the principal place of business for each of the MPM Entities and Ansbert Gadicke, Luke Evnin, Steven St. Peter, Vaughn Kailian and John Vander Vort is The John Hancock Tower, 200 Clarendon Street, 54th Floor, Boston, MA 02116 and the address of the principal place of business for William Greene, James Paul Scopa and Ashley Dombkowski is 601 Gateway Blvd., Suite 350, S. San Francisco, CA 94080.

(c) The principal business of each of the Filing Persons is the venture capital investment business.

(d) During the last five years, none of the Filing Persons has been convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) During the last five years, none of the Filing Persons has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree, or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) Each of the Listed Persons is a United States citizen and each of the MPM Entities is a Delaware limited partnership or limited liability company, except BV IV KG and BV III KG, which were organized in Germany.

In accordance with the provisions of General Instruction C to Schedule 13D, information concerning the managers and each other person controlling the general partners of the MPM Entities required by Item 2 of Schedule 13D is listed on Schedule 1 hereto and is incorporated by reference herein.

Item 3. Source and Amount of Funds or Other Consideration

Each of the MPM Entities acquired shares of the Issuer's Common Stock, warrants to purchase Common Stock and options to purchase CDIs (as defined below) prior to the effectiveness of the Issuer's registration of its Common Stock under Section 12 of the Securities Exchange Act of 1934, as amended (the Exchange Act). Prior to such registration, which became effective on October 30, 2008 (the Registration

Date), the Filing Persons collectively beneficially owned an aggregate of 4,198,820 shares of the Issuer's Common Stock.

Subsequent to the Registration Date, BV IV QP, BV IV KG and AM LLC (collectively, the MPM IV Funds) acquired an aggregate of 20,308 shares of the Issuer's Common Stock in broker's transactions pursuant to the purchase of CHESSE Depository Interests (CDIs). CDIs are units of beneficial ownership in shares of Common Stock held by CHESSE Depository Nominees Pty Limited, a wholly-owned subsidiary of the Australian Stock Exchange. The CDIs are economically equivalent to shares of Common Stock of the Issuer on a 1-for-20 basis. The shares were purchased as follows: 6,911 of these shares were purchased at a price of \$7.03 per share on January 13, 2009, for an aggregate purchase price of \$48,585; 1,598 of these shares were purchased at a price of \$7.80 per share on January 15, 2009, for an aggregate purchase price of \$12,465; 7,340 of these shares were purchased at a price of \$8.20 per share on January 16, 2009, for an aggregate purchase price of \$60,188; 899 of these shares were purchased at a price of \$8.20 per share on January 19, 2009, for an aggregate purchase price of \$7,372; 45 of these shares were purchased at a price of \$8.40 per share on January 20, 2009, for an aggregate purchase price of \$378; 932 of these shares were purchased at a price of \$8.00 per share on January 21, 2009, for an aggregate purchase price of \$7,456; 1,249 of these shares were purchased at a price of \$8.20 per share on January 22, 2009, for an aggregate purchase price of \$10,242; and 1,334 of these shares were purchased at a price of \$8.00 per share on January 22, 2009, for an aggregate purchase price of \$10,672. All of these purchases were made with the capital of the MPM IV Funds that consist of amounts invested in the MPM IV Funds by their respective investors.

Item 4. Purpose of Transaction

The MPM IV Funds purchased the CDIs for investment purposes with the aim of increasing the value of their investments.

Subject to applicable legal requirements, one or more of the Filing Persons may purchase additional securities of the Issuer from time to time in open market or private transactions, depending on their evaluation of the Issuer's business, prospects and financial condition, the market for the Issuer's securities, other developments concerning the Issuer, the reaction of the Issuer to the Filing Persons' ownership of the Issuer's securities, other opportunities available to the Filing Persons, and general economic, money market and stock market conditions. In addition, depending upon the factors referred to above, the Filing Persons may dispose of all or a portion of their securities of the Issuer at any time. Each of the Filing Persons reserves the right to increase or decrease its holdings on such terms and at such times as each may decide.

Other than as described above in this Item 4, none of the Filing Persons have any plan or proposal relating to or that would result in: (a) the acquisition by any person of additional securities of the Issuer or the disposition of securities of the Issuer; (b) an extraordinary corporate transaction, such as a merger, reorganization or liquidation, involving the Issuer or any of its subsidiaries; (c) a sale or transfer of a material amount of assets of the Issuer or any of its subsidiaries; (d) any change in the present board of directors or management of the Issuer, including any plans or proposals to change the number or terms of directors or to fill any existing vacancies on the board; (e) any material change in the present capitalization or dividend policy of the Issuer; (f) any other material change in the Issuer's business or corporate structure; (g) any changes in the Issuer's charter, by-laws or instruments corresponding thereto or other actions which may impede the acquisition of control of the Issuer by any person; (h) causing a class of securities of the Issuer to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association; (i) a class of equity securities of the Issuer becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Exchange Act; or (j) any action similar to those enumerated above.

Item 5. Interest in Securities of the Issuer

(a) (b) The following information with respect to the ownership of the Common Stock of the Issuer by the Filing Persons is provided as of January 22, 2009:

Reporting Person	Shares	Shares	Shares	Shares	Sole	Shared	Sole	Shared	Beneficial	Percentage
	Held	Issuable Upon Exercise of Options of Common Stock	Issuable Upon Exercise of Warrants to Purchase Common Stock	Issuable Upon Exercise of Options to Purchase CDIs	Voting Power	Voting Power	Dispositive Power	Dispositive Power	Ownership	of Class (1)
Y IV QP	2,704,561	0	361,668	382,197	3,448,426	0	3,448,426	0	3,448,426	21.7
Y IV KG	104,191	0	13,933	14,724	132,848	0	132,848	0	132,848	0.9
M LLC	76,902	0	10,284	10,868	98,054	0	98,054	0	98,054	0.6
Y IV GP(2)	0	0	0	0	0	3,581,274	0	3,581,274	3,581,274	22.5
Y IV LLC(3)	0	0	0	0	0	3,679,328	0	3,679,328	3,679,328	23.1
Y III	25,510	0	0	0	25,510	0	25,510	0	25,510	0.2
Y III QP	379,381	0	0	0	379,381	0	379,381	0	379,381	2.5
Y III KG	32,061	0	0	0	32,061	0	32,061	0	32,061	0.2
Y III PF	11,456	0	0	0	11,456	0	11,456	0	11,456	0.1
M BVIII LLC	9,017	0	0	0	9,017	0	9,017	0	9,017	0.1
Y SF	62,375	0	0	0	62,375	0	62,375	0	62,375	0.4
Y III GP(4)	0	0	0	0	0	510,783	0	510,783	510,783	3.4
Y III LLC(4)	0	0	0	0	0	510,783	0	510,783	510,783	3.4
Isbert Gadicke(5)	0	0	0	0	0	4,199,128	0	4,199,128	4,199,128	26.4
ke Evnin(5)	0	0	0	0	0	4,199,128	0	4,199,128	4,199,128	26.4
ven St. Peter(6)	0	0	0	0	0	3,679,328	0	3,679,328	3,679,328	23.1
William Greene(6)	0	0	0	0	0	3,679,328	0	3,679,328	3,679,328	23.1
nes Paul Scopa(6)(7)	0	20,000	0	0	20,000	3,679,328	20,000	3,679,328	3,699,328	23.2
hley Dombkowski(6)	0	0	0	0	0	3,679,328	0	3,679,328	3,679,328	23.1
ughn Kailian(6)	0	0	0	0	0	3,679,328	0	3,679,328	3,679,328	23.1
n Vander Vort(6)	0	0	0	0	0	3,679,328	0	3,679,328	3,679,328	23.1

(1) This percentage is calculated based upon 15,141,121 shares of the Issuer's Common

Stock
outstanding as of
December 9,
2008, as adjusted
pursuant to
Rule 13d-3(d)(1)
promulgated
under the
Securities
Exchange Act, as
set forth in the
Issuer's final
prospectus dated
January 20, 2009,
filed with the
Securities and
Exchange
Commission on
January 20, 2009.

- (2) Includes securities held by BV IV QP and BV IV KG. BV IV GP and BV IV LLC are the direct and indirect general partners of BV IV QP and BV IV KG.
- (3) Includes securities held by BV IV QP, BV IV KG and AM LLC. BV IV GP and BV IV LLC are the direct and indirect general partners of BV IV QP and BV IV KG and BV IV LLC is the manager of AM LLC.

- (4) Includes securities held by BV III, BV III QP, BV III PF, BV IV KG and BV SF. BV III GP and BV III LLC are the direct and indirect general partners of BV III, BV III QP, BV III PF, BV III KG and BV SF.
- (5) Includes securities held by BV IV QP, BV IV KG, AM LLC, BV III, BV III QP, BV III PF, BV III KG and BV SF. The Reporting Person is a Series A member of BV III LLC and a manager of AM BV III LLC.
- (6) Includes securities held by BV IV QP, BV IV KG and AM LLC. The Reporting Person is a member of BV IV LLC.
- (7) Includes 20,000 shares of Common Stock issuable upon the exercise of options within 60 days of the

filing date.

(c) During the past 60 days, the MPM Entities purchased the following shares of Common Stock in broker's transactions:

MPM Entity	Date of Transaction	Common Stock Equivalent of CDIs Purchased	Equivalent Price Per Share
BV IV QP	January 13, 2009	6,478	\$ 7.03
BV IV KG	January 13, 2009	249	\$ 7.03
AM LLC	January 13, 2009	184	\$ 7.03
BV IV QP	January 15, 2009	1,499	\$ 7.80
BV IV KG	January 15, 2009	57	\$ 7.80
AM LLC	January 15, 2009	42	\$ 7.80
BV IV QP	January 16, 2009	6,880	\$ 8.20
BV IV KG	January 16, 2009	265	\$ 8.20
AM LLC	January 16, 2009	195	\$ 8.20
BV IV QP	January 19, 2009	843	\$ 8.20
BV IV KG	January 19, 2009	32	\$ 8.20
AM LLC	January 19, 2009	24	\$ 8.20
BV IV QP	January 20, 2009	43	\$ 8.40
BV IV KG	January 20, 2009	1	\$ 8.40
AM LLC	January 20, 2009	1	\$ 8.40
BV IV QP	January 21, 2009	875	\$ 8.00
BV IV KG	January 21, 2009	33	\$ 8.00
AM LLC	January 21, 2009	24	\$ 8.00
BV IV QP	January 22, 2009	1,171	\$ 8.20
BV IV KG	January 22, 2009	45	\$ 8.20
AM LLC	January 22, 2009	33	\$ 8.20
BV IV QP	January 22, 2009	1,251	\$ 8.00
BV IV KG	January 22, 2009	48	\$ 8.00
AM LLC	January 22, 2009	35	\$ 8.00

Each Filing Person disclaims membership in a group. Each Filing Person also disclaims beneficial ownership of any shares of the Issuer, except for the shares set forth in the table above next to the respective Filing Person's name in subsection (b) of this Item 5.

(d) Inapplicable.

(e) Inapplicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer
Board Representation

Pursuant to a purchase agreement for shares and options entered into in May 2006, by and among Peplin Limited and BV IV QP, MPM BioVentures IV, L.P. (BV IV LP) and AM LLC (BV IV QP, BV IV LP and AM LLC collectively, MPM), Peplin Limited undertook to procure that a resolution be put to stockholders to appoint James Paul Scopa as a director and also to appoint a person nominated by MPM as a director. Mr. Scopa and Dr. Eugene Bauer, MPM s nominee, were elected as directors by stockholders in June 2006. On October 16, 2007, the Issuer acquired all the outstanding shares of Peplin Limited pursuant to a Scheme of Arrangement and Peplin Limited became a wholly-owned subsidiary of the Issuer and the directors of Peplin Limited, including Mr. Scopa and Dr. Bauer, succeeded to the board of directors of the Issuer. The Issuer has no further contractual obligations to nominate either Mr. Scopa or an MPM designee to its board of directors. James Paul Scopa is a member of the Board of Directors of the Issuer, whose term will expire at the Issuer s annual meeting of stockholders to be held in 2011. Mr. Scopa is also a member of BV IV LLC and AM LLC. BV IV LLC is the indirect general partner of BV IV QP and BV IV KG. Dr. Bauer has no formal business relationship with the Filing Persons nor does Dr. Bauer have any voting or dispositive authority with respect to the securities held by the Filing Persons.

Plan of Merger and Reorganization

Pursuant to an Agreement and Plan of Reorganization dated as of June 9, 2008, by and among the Issuer, West Acquisitions Corp., Neosil, Inc. and Nicholas J. Simon, III (the Merger Agreement), the Issuer issued BV III, BV III QP, BV III PF, BV IIIV KG and BV SF (collectively, the MPM III Funds) an aggregate of 519,800 shares of Common Stock (the Merger Securities) in connection with the Issuer s acquisition of Neosil, Inc., a privately held company in which the MPM III Funds were stockholders. The Merger Agreement requires the Issuer, at its expense, to prepare and file a registration statement on Form S-1 for the registration of the Merger Securities prior to December 31, 2008 and to keep the registration statement continuously effective until the earlier of: (A) such time that all of the Registrable Securities have been sold pursuant to the Registration Statement and (B) such time as all the Registrable Securities held by non-affiliates of the Issuer may be resold to the public in accordance with Rule 144 under the Securities Act of 1933, as amended (the Securities Act) where no conditions of Rule 144 are then applicable (other than the holding period requirement of paragraph (d) of Rule 144). The Issuer filed a registration statement on Form S-1 related to the Merger Securities on December 30, 2008 and the registration statement was declared effective by the Securities and Exchange Commission (SEC) on January 20, 2009.

Stock Subscription and Registration Rights Agreement

On August 18, 2008, the Issuer entered into a Stock Subscription and Registration Rights Agreement with the MPM IV Funds and other holders of the Issuer s Common Stock and warrants to purchase Common Stock (the Subscription Agreement), whereby the MPM IV Funds acquired an aggregate of 1,157,655 shares of Common Stock (the August Shares) and warrants to acquire 385,885 shares of Common Stock (the August Warrants). The Subscription Agreement required the Issuer, at its expense, to register for resale the August Shares as well as the shares of Common Stock underlying the August Warrants (collectively, the August Registrable Securities) and to use commercially reasonable efforts to prepare and file a registration statement on Form S-1 for the registration of the Registrable Securities prior to November 30, 2008. The Subscription Agreement also requires the Issuer to use commercially reasonable efforts to have such registration statement declared effective prior to March 30, 2009, and to keep the registration statement continuously effective until the earlier of: (A) such time that all of the Registrable Securities have been sold pursuant to the Registration Statement and (B) such time as all the Registrable Securities held by non-affiliates of the Issuer may be resold to the public in accordance with Rule 144 under the Securities Act where no conditions of Rule 144 are then applicable (other than the holding period requirement of paragraph (d) of Rule 144). The Issuer

filed a registration statement on Form S-1 related to the Registrable Securities on December 1, 2008 and the registration statement was declared effective by the SEC on December 12, 2008.

Registration Rights Agreement

On October 23, 2008, the Issuer entered into a Registration Rights Agreement with the MPM IV Funds and other holders of the Issuer's Common Stock and warrants to purchase Common Stock (the Registration Rights Agreement). Pursuant to the Registration Rights Agreement, the Issuer provided certain demand and piggyback registration rights with regard to the August Registrable Securities, as well as (i) any additional shares of Common Stock the MPM IV Funds held prior to the closing of the Subscription Agreement, and (ii) any shares of Common Stock that the MPM IV Funds may acquire from the Issuer in transactions exempt from registration under the Securities Act in the future (collectively, the October Registrable Securities).

Pursuant to the Registration Rights Agreement, at any time after the Issuer is eligible to use Form S-3, subject to certain limited exceptions, the Issuer will be obligated to register the October Registrable Securities for resale on Form S-3 upon the written demand of holders of October Registrable Securities, provided that such registration provides for an anticipated offering aggregate price, net of selling expenses, of at least \$5,000,000. The MPM IV Funds may not exercise such demand rights if the Issuer has filed two Form S-3 registration statements pursuant to this agreement in the prior twelve month period. In addition, the Registration Rights Agreement also includes certain piggyback registration rights which entitle the MPM IV Funds to include the October Registrable Securities on any registration statement filed by the Issuer under the Securities Act, subject to certain limited exceptions. The registration rights granted pursuant to the Registration Rights Agreement terminate five years after the completion of the Issuer's first public offering and sale of primary shares of Common Stock for cash pursuant to an effective registration statement under the Securities Act.

Indemnification Provisions

In the case of each of the Merger Agreement, the Subscription Agreement and the Registration Rights Agreement, the Issuer and each selling stockholder other party to such agreement, including the applicable MPM Entities party to such agreement, have agreed to indemnify the other with respect to certain liabilities that may be incurred under the Securities Act.

Other than as described in this Schedule 13D, to the best of the Filing Persons' knowledge, there are no other contracts, arrangements, understandings or relationships (legal or otherwise) among the persons named in Item 2 and between such persons and any person with respect to any securities of the Issuer.

Item 7. Material to Be Filed as Exhibits

- A. Plan of Merger and Reorganization between Peplin, Inc., West Acquisitions Corp. and Neosil, Inc., dated June 9, 2008 (incorporated by reference to Exhibit 10.28 to the Registration Statement on Form 10 (File No. 0-53410) filed on September 12, 2008).
- B. Stock Subscription and Registration Rights Agreement, dated August 18, 2008, by and among Peplin, Inc. and the investors named therein (incorporated by reference to Exhibit 10.29 to the Registration Statement on Form 10 (File No. 0-53410) filed on September 12, 2008).
- C. Registration Rights Agreement, dated October 23, 2008 (incorporated by reference to Exhibit 4.4 to the Registration Statement on Form 10/A (File No. 0-53410) filed on October 27, 2008).
- D. Agreement regarding filing of joint Schedule 13D.

Signatures

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: January 23, 2009

MPM BioVentures IV GP LLC

By: MPM BioVentures IV LLC,
its Managing Member

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM BioVentures IV LLC

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM BioVentures IV-QP, L.P.

By: MPM BioVentures IV GP LLC, its General
Partner

By: MPM BioVentures IV LLC, its Managing
Member

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

**MPM BioVentures IV GmbH & Co.
Beteiligungs KG**

By: MPM BioVentures IV GP LLC, in its
capacity as
the Managing Limited Partner

By: MPM BioVentures IV LLC, its Managing
Member

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM Asset Management Investors BV4 LLC

By: MPM BioVentures IV LLC
Its: Manager

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM BioVentures III, L.P.

By: MPM BioVentures III GP, L.P., its General Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM BioVentures III-QP, L.P.

By: MPM BioVentures III GP, L.P., its General Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

**MPM BioVentures III GmbH & Co.
Beteiligungs KG**

By: MPM BioVentures III GP, L.P., in its capacity as

the Managing Limited Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM BioVentures III Parallel Fund, L.P.

By: MPM BioVentures III GP, L.P., its General Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

**MPM Asset Management Investors 2004 BVIII
LLC**

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Manager

MPM BioVentures Strategic Fund, L.P.

By: MPM BioVentures III GP, L.P., its General
Partner

By: MPM BioVentures III LLC, its General
Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM BioVentures III GP, L.P.

By: MPM BioVentures III LLC, its General
Partner

By: /s/ Luke Evnin
Name: Luke Evnin
Title: Series A Member

MPM BioVentures III, LLC

By: /s/ Luke Evnin
Name: Luke Evnin
Title: Series A Member

By: /s/ Ansbert Gadicke
Name: Ansbert Gadicke

By: /s/ Luke Evnin
Name: Luke Evnin

By: /s/ Steven St. Peter
Name: Steven St. Peter

By: /s/ William Greene
Name: William Greene

By: /s/ James Paul Scopa
Name: James Paul Scopa

By: /s/ Ashley Dombkowski
Name: Ashley Dombkowski

By: /s/ Vaughn M. Kailian

Name: Vaughn M. Kailian

By: /s/ John Vander Vort
Name: John Vander Vort

Schedule I
General Partners/Members

Ansbert Gadicke

c/o MPM Asset Management
The John Hancock Tower
200 Clarendon Street, 54th Floor
Boston, MA 02116

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co. Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC. Series A Member of the general partner of the general partner of MPM BioVentures III-QP, L.P., MPM BioVentures III, L.P., MPM BioVentures III Parallel Fund, L.P. and MPM BioVentures Strategic Fund, L.P., Series A Member of the general partner of the managing limited partner of MPM BioVentures III GmbH & Co. Parallel-Beteiligungs KG and manager of MPM Asset Management Investors 2004 BVIII LLC.

Citizenship: USA

Luke Evnin

c/o MPM Asset Management
The John Hancock Tower
200 Clarendon Street, 54th Floor
Boston, MA 02116

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co. Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC. Series A Member of the general partner of the general partner of MPM BioVentures III-QP, L.P., MPM BioVentures III, L.P., MPM BioVentures III Parallel Fund, L.P. and MPM BioVentures Strategic Fund, L.P., Series A Member of the general partner of the managing limited partner of MPM BioVentures III GmbH & Co. Parallel-Beteiligungs KG and manager of MPM Asset Management Investors 2004 BVIII LLC.

Citizenship: USA

Steven St. Peter

c/o MPM Asset Management
The John Hancock Tower
200 Clarendon Street, 54th Floor
Boston, MA 02116

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co. Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC.

Citizenship: USA

William Greene

c/o MPM Asset Management
601 Gateway Blvd. Suite 350
S. San Francisco, CA 94080

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co. Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC.

Citizenship: USA

James Paul Scopa

c/o MPM Asset Management

601 Gateway Blvd. Suite 350

S. San Francisco, CA 94080

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co.

Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC.

Citizenship: USA

Ashley Dombkowski

c/o MPM Asset Management

601 Gateway Blvd. Suite 350

S. San Francisco, CA 94080

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co.

Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC.

Citizenship: USA

Vaughn M. Kailian

c/o MPM Asset Management

The John Hancock Tower

200 Clarendon Street, 54th Floor

Boston, MA 02116

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co.

Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC.

Citizenship: USA

John Vander Vort

c/o MPM Asset Management

The John Hancock Tower

200 Clarendon Street, 54th Floor

Boston, MA 02116

Principal Occupation: Member of the managing member of the general partner of MPM BioVentures IV-QP, L.P., member of the managing member of the managing limited partner of MPM BioVentures IV GmbH & Co.

Beteiligungs KG and member of the manager of MPM Asset Management Investors BV4 LLC.

Citizenship: USA

Exhibit Index

- A. Plan of Merger and Reorganization between Peplin, Inc., West Acquisitions Corp. and Neosil, Inc., dated June 9, 2008 (incorporated by reference to Exhibit 10.28 to Current Report No. 000-53410 on Form 10 filed on September 12, 2008).
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- C. Registration Rights Agreement, dated October 23, 2008 (incorporated by reference to Exhibit 4.4 to Registration Statement No. 000-53410 on Form 10/A filed on October 27, 2008).
- D. Agreement regarding filing of joint Schedule 13D.

Exhibit D
Joint Filing Statement

I, the undersigned, hereby express my agreement that the attached Schedule 13D (and any amendments thereto) relating to the beneficial ownership by the undersigned of the equity securities of Peplin, Inc. is filed on behalf of each of the undersigned.

Date: January 23, 2009

MPM BioVentures IV GP LLC

By: MPM BioVentures IV LLC,
its Managing Member

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM BioVentures IV LLC

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM BioVentures IV-QP, L.P.

By: MPM BioVentures IV GP LLC, its General
Partner

By: MPM BioVentures IV LLC, its Managing
Member

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

**MPM BioVentures IV GmbH & Co.
Beteiligungs KG**

By: MPM BioVentures IV GP LLC, in its
capacity

as the Managing Limited Partner

By: MPM BioVentures IV LLC, its Managing
Member

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

MPM Asset Management Investors BV4 LLC

By: MPM BioVentures IV LLC
Its: Manager

By: /s/ Vaughn M. Kailian
Name: Vaughn M. Kailian
Title: Member

Page 35

MPM BioVentures III, L.P.

By: MPM BioVentures III GP, L.P., its General Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM BioVentures III-QP, L.P.

By: MPM BioVentures III GP, L.P., its General Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM BioVentures III GmbH & Co. Beteiligungs KG

By: MPM BioVentures III GP, L.P., in its capacity as the Managing Limited Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM BioVentures III Parallel Fund, L.P.

By: MPM BioVentures III GP, L.P., its General Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Series A Member

MPM Asset Management Investors 2004 BVIII LLC

By: /s/ Luke Evinin
Name: Luke Evinin
Title: Manager

MPM BioVentures Strategic Fund, L.P.

By: MPM BioVentures III GP, L.P., its General
Partner

By: MPM BioVentures III LLC, its General Partner

By: /s/ Luke Evin

Name: Luke Evin

Title: Series A Member

Page 36

MPM BioVentures III GP, L.P.

By: MPM BioVentures III LLC, its General
Partner

By: /s/ Luke Evnin
Name: Luke Evnin
Title: Series A Member

MPM BioVentures III, LLC

By: /s/ Luke Evnin
Name: Luke Evnin
Title: Series A Member

By: /s/ Ansbert Gadicke
Name: Ansbert Gadicke

By: /s/ Luke Evnin
Name: Luke Evnin

By: /s/ Steven St. Peter
Name: Steven St. Peter

By: /s/ William Greene
Name: William Greene

By: /s/ James Paul Scopa
Name: James Paul Scopa

By: /s/ Ashley Dombkowski
Name: Ashley Dombkowski

By: /s/ Vaughn M. Kailian

Name: Vaughn M. Kailian

By: /s/ John Vander Vort
Name: John Vander Vort

Page 37