

SCHEDULE 13G
Under the Securities Exchange Act of 1934

Amendment No.: 6*

Name of Issuer: A.O. Smith Corporation

Title of Class of Securities: Common Stock

CUSIP Number: 83186520-9

Date of Event Which Requires Filing of this Statement: 12/31/2004

Check the appropriate box to designate the rule pursuant to which this Schedule is filed.

- Rule 13d-1(b)
 Rule 13d-1(c)
 Rule 13d-1(d)

* 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 the disclosures provided in a prior cover page.

The information required in 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.: 83186520-9

1. NAME OF REPORTING PERSON
S.S. OR I.R.S. IDENTIFICATION NO. OF ABOVE PERSON
Mac-Per-Wolf Company
EIN #36-3099763

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP
a.
b.

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION
Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:

5. SOLE VOTING POWER
1,458,290

6. SHARED VOTING POWER
-0-

7. SOLE DISPOSITIVE POWER
1,458,290

8. SHARED DISPOSITIVE POWER
-0-

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
1,458,290

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES
N/A

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
6.9%

12. TYPE OF REPORTING PERSON
HC

CUSIP No.: 83186520-9

1. NAME OF REPORTING PERSON
S.S. OR I.R.S. IDENTIFICATION NO. OF ABOVE PERSON
Janus Small Cap Value Fund
36-3344166

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP
a.
b.

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION
Massachusetts

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:

5. SOLE VOTING POWER
900,000

6. SHARED VOTING POWER
-0-

7. SOLE DISPOSITIVE POWER
900,000

8. SHARED DISPOSITIVE POWER
-0-

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
900,000

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN
SHARES
N/A

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
4.3%

12. TYPE OF REPORTING PERSON
IV

Item 1.

(a). Name of Issuer: A.O. Smith Corporation ("A.O. Smith")

(b). Address of Issuer's Principal Executive Offices:

PO Box 245008
Milwaukee, WI 53224-9508

Item 2.

(a)-(c). Name, Principal Business Address, and Citizenship of
Persons

Filing:

(1) Mac-Per-Wolf Company
310 S. Michigan Ave., Suite 2600
Chicago, IL 60604
Citizenship: Delaware

(2) Janus Small Cap Value Fund
151 Detroit Street
Denver, Colorado 80206
Citizenship: Massachusetts

(d). Title of Class of Securities: Common Stock

(e). CUSIP Number: 83186520-9

Item 3.

This statement is filed pursuant to Rule 13d-1 (b) and the person filing, Mac-Per-Wolf Company, is a parent holding company in accordance with 240.13d-1(b)(1)(ii)(G). See Item 7 for additional information.

Janus Small Cap Value Fund is an Investment Company registered under Section 8 of the Investment Company Act of 1940.

Item 4. Ownership

The information in items 1 and 5 through 11 on the cover page(s) on Schedule 13G is hereby incorporated by reference.

Perkins, Wolf, McDonnell and Company, LLC furnishes investment advice to various investment companies registered under Section 8 of the Investment Company Act of 1940 and to individual and institutional clients (collectively referred to herein as "Managed Portfolios").

Janus Small Cap Value Fund is an investment company registered under the Investment Company Act of 1940 and is one of the Managed Portfolios to which Perkins, Wolf, McDonnell and Company, LLC provides investment advice.

Item 5. Ownership of Five Percent or Less of a Class

This statement is being filed to report the fact that Janus Small Cap Value Fund has ceased to be the beneficial owners of more than five percent of the class of securities.

Item 6. Ownership of More than Five Percent on Behalf of Another Person

The Managed Portfolios, set forth in Item 4 above, have the right to receive all dividends from, and the proceeds from the sale of, the securities held in their respective accounts.

The interest of any one person does not exceed 5% of the class of securities.

These shares were acquired in the ordinary course of business, and not with the purpose of changing or influencing control of the Issuer.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company

The reporting person, Mac-Per-Wolf Company, is filing on behalf of its two subsidiaries:

- 1) PWMCO, LLC is a wholly-owned subsidiary of Mac-Per-Wolf Company and is both a broker dealer registered under Section 15 of the Act and an investment adviser registered under Section 203 of the Investment Advisers Act of 1940
- 2) Perkins, Wolf, McDonnell and Company, LLC is a subsidiary of Mac-Per-Wolf Company, and is an investment adviser registered under Section 203 of the Investment Advisers Act of 1940

Item 8. Identification and Classification of Members of the Group

Not applicable.

Item 9. Notice of Dissolution of Group

Not applicable.

Item 10. Certification

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired in the ordinary course of business and were not acquired for the purpose of and do not have the effect of changing or influencing the control of the issuer of such securities and were not acquired in connection with or as a participant in any transaction having such purposes or effect.

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.

Mac-Per-Wolf Company

By /s/ Gregory E. Wolf 1/31/2005
Gregory E. Wolf, Date
Treasurer

JANUS SMALL CAP VALUE FUND

By /s/ Heidi J. Walter 1/31/2005
Heidi J. Walter, Date
Vice President & Assistant General Counsel

EXHIBIT A
JOINT FILING AGREEMENT

In accordance with Rule 13d-1(f) under the Securities Exchange Act of 1934, the persons named below agree to the joint filing on behalf of each of them of a Statement on Schedule 13G (including amendments thereto) with respect to the Common Stock of A.O. Smith Corporation and further agree that this Joint Filing Agreement be included as an Exhibit to such joint filings. In evidence thereof, the undersigned hereby execute this Agreement as of the 31st day of January, 2005.

Mac-Per-Wolf Company

By /s/ Gregory E. Wolf
Treasurer

JANUS SMALL CAP VALUE FUND

By /s/ Heidi J. Walter
Heidi J. Walter, Vice President & Assistant General

Counsel